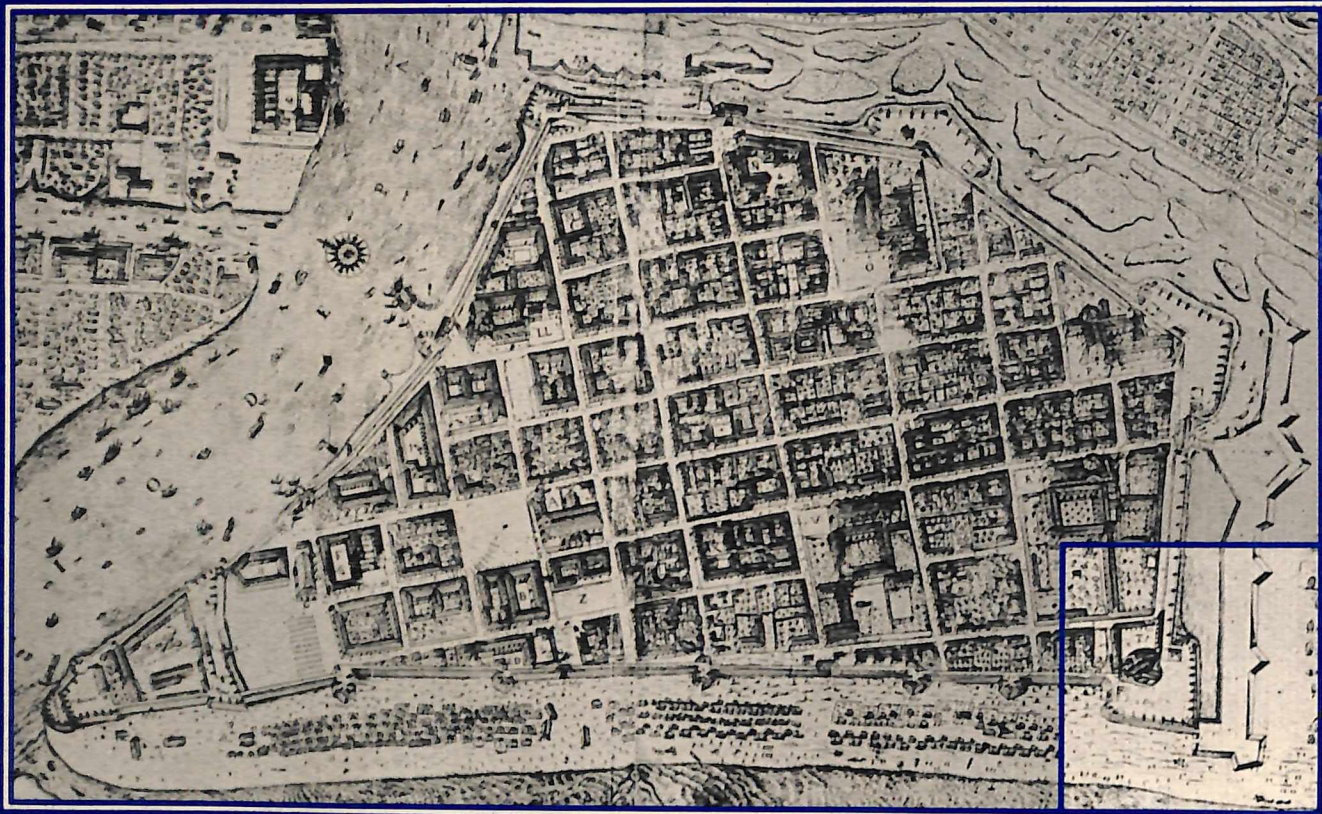


Esperanza B. Gathbonton
Documentation by the National Museum

BASTIÓN DE SAN DIEGO



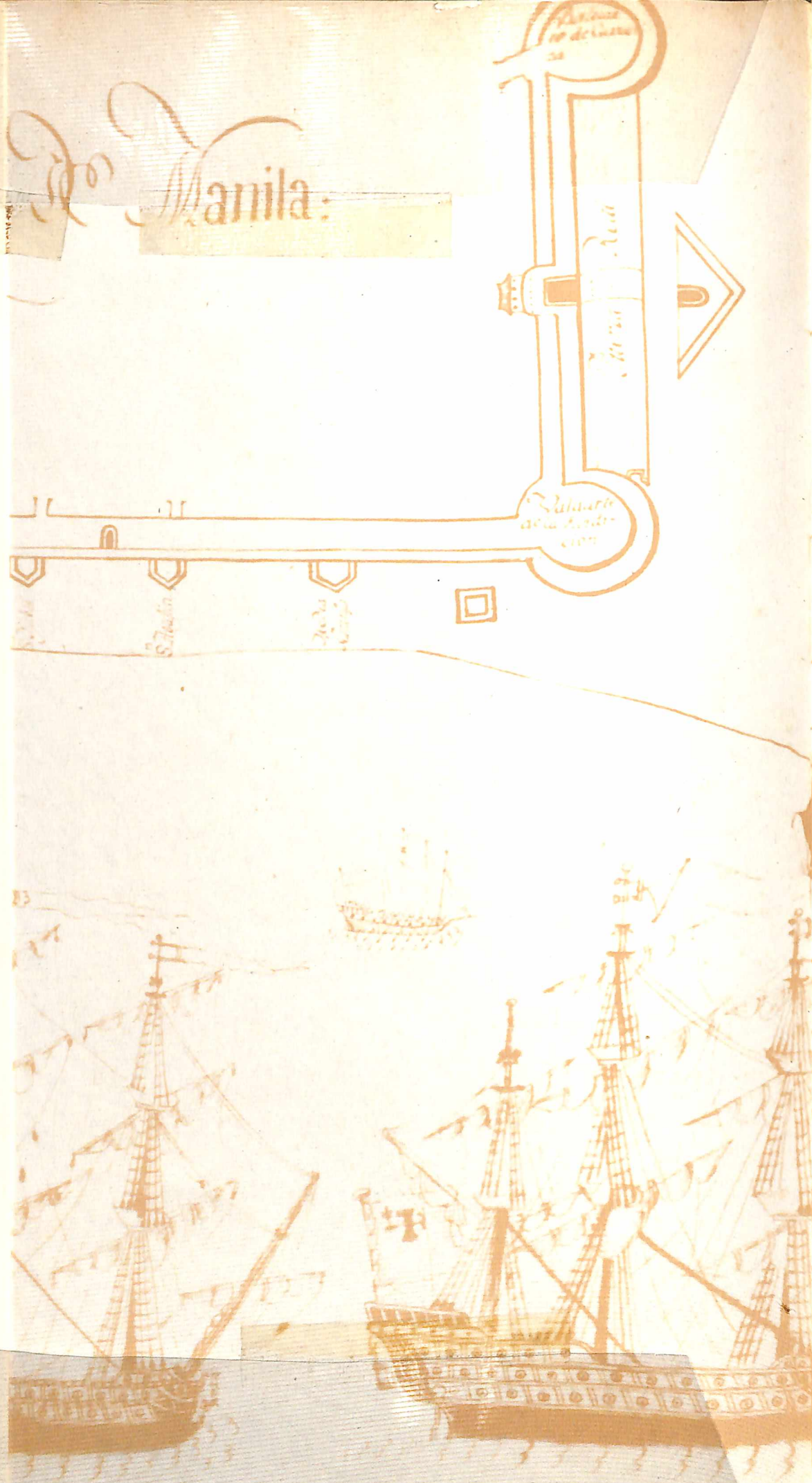
INTRAMUROS ADMINISTRATION
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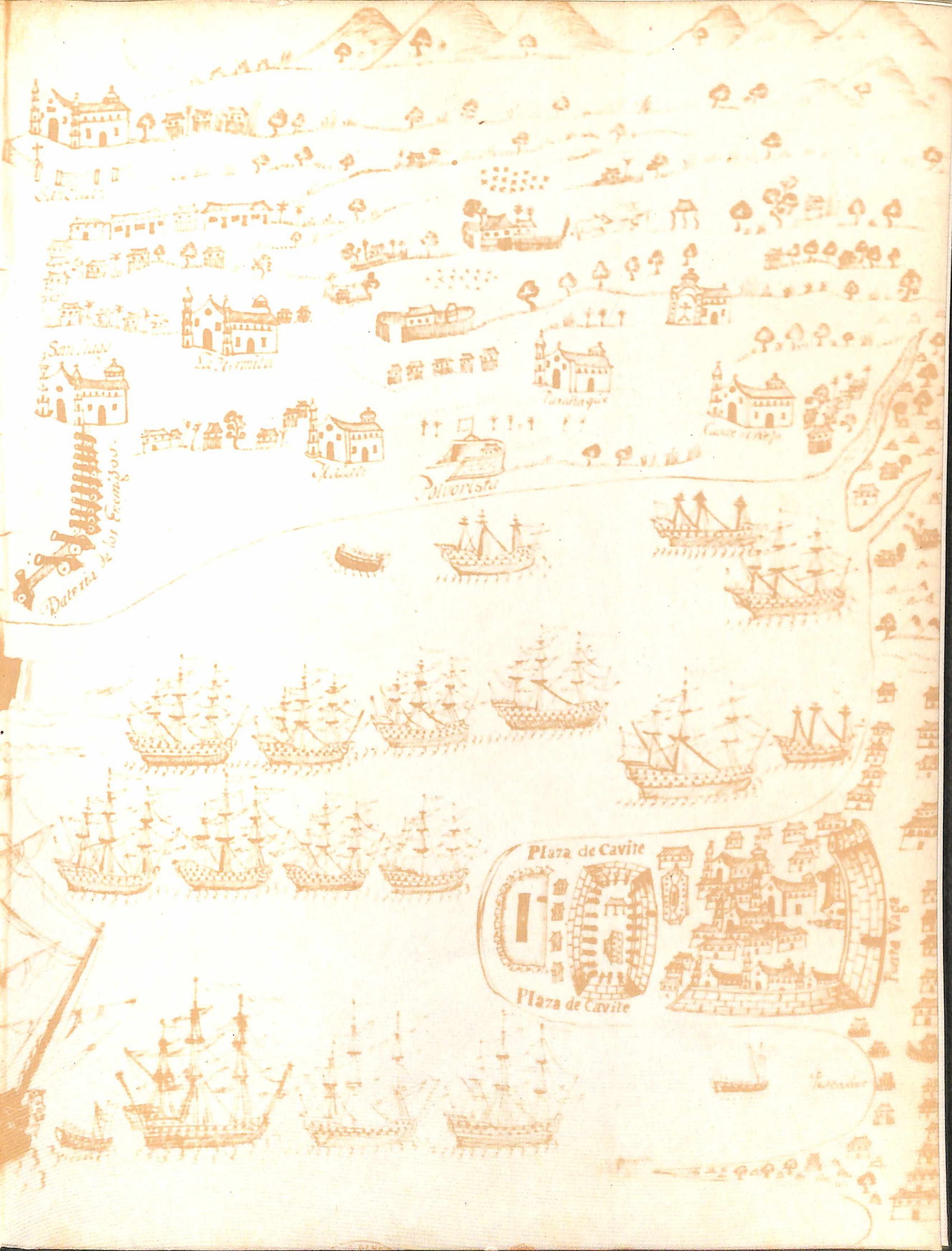
BASTIÓN DE SAN DIEGO

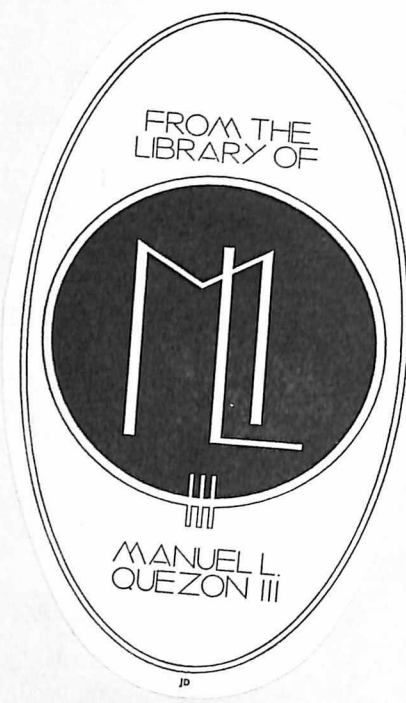
Bastión de San Diego is located on the southern tip of Manila's walled fortification. Originally built as the round tower of Nuestra Señora de Guía between 1585 and 1587, it was renovated and joined to the encircling stone fortification by Governor-General Gómez Pérez Dasmariñas in 1593. It was virtually demolished in the earthquake of 1645 and rebuilt by Governor Sabiano Manrique de Lara. It was partially destroyed by British artillery in 1762 and rebuilt in the last decades of that century. Taken over by the American military command, the top of its bulwark was leveled and held some of the offices and headquarters of the American forces. It was left to the mercy of the elements and itinerant squatters, who huddled within its ruins.

The conservation of Bastión de San Diego began on March 17, 1979. This initial effort to clear the structure of vegetation and waste led to the discovery of interesting architectural features, many of them previously unrecorded and photographed.

As an archaeological site, Bastión de San Diego remained relatively undisturbed since the start of the twentieth century, back-filled to the top of the structure. The clayey and sandy soil deposits were dredgings from the Pasig River and the Manila Bay area. But the intrusion of contemporary materials was found at a depth of five to six meters from the top of the structure—evidence of a treasure hunt for gold bars supposedly buried here by the retreating Japanese military command. Through the duration of the excavation of this bastion, rumors







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BASTIÓN DE SAN DIEGO

BASTIÓN DE SAN DIEGO

Esperanza B. Gatbonton
Documentation by the National Museum



INTRAMUROS ADMINISTRATION
MINISTRY OF HUMAN SETTLEMENTS

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Foreword

THIS MONOGRAPH describes one of the major features of the Intramuros fortifications, Baluarte de San Diego, named after the Spanish warrior saint also known as Santiago.

The Baluarte is an arrowhead-shaped structure at the southwest corner of Intramuros, facing Rizal Park and the Manila Hotel. It encases what remains of a circular fort, a tower, erected by the Spaniards soon after Legazpi and his men encountered Rajahs Matanda and Sulayman. One has to imagine the Manila of four hundred years ago, perhaps similar to the shoreline of modern Cavite bayside towns minus resort cottages, with a gray sand beach and a dense thicket of thorny aroma trees, and with groups of nipa thatch huts here and there, mainly clustered at the mouth of the Pasig River where Sulayman's palisade was. Legazpi ejected the native population from its settlement and erected a stone fort, Fort Santiago. The displaced population moved to Bagumbayan ("New Town"), roughly where Teodoro Valencia's Sunday evening *Concert at the Park* is now held. Impressing the natives into forced labor, the new colonizers also hastily erected a round fort nearby to keep an eye on the restless population, Fort San Antonio Abad in a marshy area near an estuary a few kilometers farther south, and across the Bay, in Cavite, Fort San Felipe guarding the anchorage of the *nao de China*, the Manila Galleon. There were four alien structures, therefore: the Fort at the mouth of the river, the fort near Bagumbayan, called the Fort Nuestra Señora de Guía after the image of the Virgin found roughly at the same time in a clump of *pandan* bushes a little farther on down the seashore, Fort San Antonio Abad in Malate, and Fort San Felipe in Cavite, representing the most remote Spanish presence in the East, the first physical evidence of His Catholic Majesty's presence in the Indies.

Our round fort was built so hastily, certainly reluctantly, by the forced laborers who had never worked with stone—or, for that matter, never lifted stone—and supervised by Spanish priests and soldiers who themselves probably had little familiarity with

the construction of round forts. A heavy stone fort built under such conditions on a sandy beach proved to be a shaky project indeed, and the Spaniards spent much of the next hundred or so years patching up here and there, strengthening the foundations, keeping the walls up and ultimately encasing the fort in the present-day Bastión de San Diego.

Over the years a curtain wall, punctuated with little bastions, two small forts and a gate, were erected between Baluarte de San Diego and Fort Santiago until it reached its present appearance. It was connected by a similar curtain wall toward the east, to Bastión de San Andrés which contained the arsenal.

The Baluarte and the surrounding areas were the scene of three battles of Intramuros. The British and the Spaniards fought the first in 1762; the Americans and the Spaniards, the second in 1898; and the Japanese and the Americans, the third in 1945. The score was Americans-2, British-1, Spaniards-0 and Japanese-0. The *indios* were of course more often than not corralled into one side or another or both and invariably in between. One might add, however, that the *indios* were in fact absent participants in the second Battle of Intramuros. The Americans managed things such as to leave Aguinaldo and his troops far behind while the Spaniards yielded by the Baluarte. The Spanish white flag of surrender was hoisted both times (1762 and 1898) from San Diego and the American flag first flew over Intramuros at the same place.

The British breached the walls, as did the Americans, at the curtain wall toward Puerta Real. The staging point of the British was from Ermita and Malate churches and from two churches located at Bagumbayan, serving the ancient Filipino resettlement area (at Luneta's amphitheater, more or less).

There were three small churches right outside the Intramuros walls, one of which was at Bagumbayan and the other at the Parián (its site at Liwasang Bonifacio is commemorated by a historical marker). The military had long wanted to have these churches demolished, recognizing the threat they posed if fallen into enemy hands. It seems that

Church and State relationships were not at their most felicitous, and the proposal got nowhere until 1762, when the British themselves demolished the churches of Santiago and San Juan. The British decision spared the Governor-General from stormy scenes with the Archbishop. Great must have been the ordeal of Sebastian Hurtado de Corcuerra (1635-44), Sabiano Manrique de Lara (1653-63) and Pedro Manuel de Arandía de Santisteban (1754-59), who all proposed the demolition of churches, convents and houses near Intramuros.

The Spaniards put up a foundry inside the city, by the main entrance going up to the Bastión, for which reason the Baluarte was also called Baluarte de la Fundición and the street paralleling the south curtain wall, still called Calle de la Fundición.

Over its four hundred years of existence, the structure has been built, enlarged, remodeled, repaired, truncated and used in various ways. In the end, the Americans covered it all up with sand dredged from the beaches of Manila, one of the early projects of today's giant Atlantic Gulf and Pacific Company.

The Americans made the Intramuros walls part of their own military headquarters, and during the Commonwealth period General Douglas MacArthur had his headquarters at Bastión de San José, at the end of Victoria Street. There were small cottages built on top of Baluarte de San Diego and nearby areas, apparently intended as homes of senior officers. The view from those cottages must have been spectacular, with the greenery of Luneta Park on one side and the Manila Bay sunset on the other,

before the highrise wing of the Manila Hotel blocked off the sunset once and for all in 1975.

The Japanese must have taken over those cottages, and at the end of the Second World War they made their last stand nearby, at the Revellín of Puerta Real, then and now the Manila Aquarium. A part of the wall was excavated and a large cannon installed, pointed at the Rizal Monument, apparently in readiness for an American assault yet again from across Bagumbayan field.

The final bombardment at the end of the Second World War pulverized a good part of the southern flank of the Bastión and covered in rubble the Japanese cannon. After that, the stronghold went into slumber for more than 30 years, punctuated only by the excitement of a miniature Statue of Liberty being erected on top, which seems to have been relocated to some inconspicuous place, sporadic invasions by Boy Scout troops wishing to do a good deed by pulling up weeds and cogon by the roots, until 1979, when the First Lady directed the members of the military to initiate restoration work. This was assumed shortly after by the newly created Intramuros Administration, bringing us to the present, in the story narrated by Mrs. Esperanza B. Gatbonton and professional archaeologists who have delved into the stone structure and thus into the history of this most interesting remnant of the country's past.

JAIME C. LAYA
Action Officer
Intramuros Administration
November 26, 1984

Introduction

RESTORATION of the Bastión de San Diego began on March 17, 1979, as part of a civic project to beautify Manila in time for the fifth UNCTAD of 1979. It went on to become a full-blown archaeological excavation that took some two years to complete and document. And it continues as a major challenge to the entire Intramuros restoration project, since this southern bulwark of Spanish Manila's fortified walls had proved to be its most enigmatic section. For one, we do not know for certain what the bastion was actually used for. Its triad of circular structures and many levels of flooring defy all the conventional answers already brought up.

The initial effort to clear the structure of vegetation and waste—and what seemed like excessive earthfill—led to the discovery of interesting architectural features, among them the top of a circular structure and a spiral staircase. The clearing operation was done by some 50 volunteers from the Philippine Navy "Seabees," organized into a task force by the Armed Forces Ladies' Committee with help from the National Museum and the National Historical Institute.

Clearing of the Bastión was going on when a Presidential Decree created the Intramuros Administration on April 10, 1979. P.D. 1616 declared the site a historic zone and entrusted the Intramuros Administration with its management and maintenance. This mandate included the actual restoration of the Walls and rehabilitation of the "inner city." Several National Museum researchers and technicians in archaeology, under the supervision of Dr. Jesús Peralta, were detailed to supervise and document the site. The National Museum lent expertise in other fields—chemical and physical analysis, defoliation and conservation of specific areas.

As an archaeological site, however, a good part of the walls was already "disturbed." There had been previous excavations or disturbance to the soil

layer, caused by generations of Manilans using the structure and building on it. Thus, the soil layers and these deposits of material culture were hopelessly mixed up, destroying whatever archaeological clues had been left there by previous inhabitants.

Bastión de San Diego was exceptional because it had remained relatively undisturbed from the start of the twentieth century. The site had been backfilled to the top of the structure. Judging from its deposit—in parts, clayey, in others sandy—the earthfill must have come from dredgings of the Pasig River and the Manila Bay area. This backfilling, contracted to Atlantic, Gulf and Pacific around the first decade of the twentieth century, actually protected the remaining structures from being disturbed. We do not know why the Americans decided to cover up the entire bastion. Aerial surveys before the destruction of Intramuros in 1945 show that low buildings occupied the mound. They might have been used as offices of the American armed forces. General Douglas MacArthur had his headquarters at 1 Victoria Street, which is atop Bastión de San José; only a stretch of curtain wall separates it from Bastión de San Diego.

Parts of the Bastión east of the spiral staircase were dug up sometime in the 1960s by treasure hunters looking for gold bars supposedly buried there by Japanese soldiers who holed up in the Walled City in 1945. At a depth below five to six meters from the top of the structure, five empty tins identified as sardine containers were found—waste material obviously alien to the general deposits excavated from this level. That specific treasure hunt ended without result. Still, rumors of buried gold bars persisted at San Diego up to 1981. By this time, those of us who worked at the San Diego diggings had learned to take such rumors skeptically. Reality was the dust and grit from the excavation that hurt the eyes and the lungs. In the summer glare, the heat and

dust became so nearly unbearable that San Diego became reputed as a hardship post among Intramuros Administration workers. It also became the training ground for ordinary workers who there learned the archaeological skills of accessioning stones and documenting sites.

Though difficult, work in San Diego was professionally fulfilling. It uncovered many previously unrecorded and unphotographed structures. It provided us with data sufficient to debunk certain longstanding claims as myths, and to clear up other issues. The Bastión did not yield cannon molds or even enough traces of ash or lead slugs in significant amounts to give archaeological support to the claim that it was the site of Panday Pira's foundry—which Juan de la Concepción makes in his 1788 *Historia General de Philipinas*. The Spanish archives are more helpful in this regard. A plan submitted by Engineer Dionisio O'Kelly showing a portion of the walls as it stood in 1770, and another submitted by Engineer Thomas Sanz in November 1779, locate where the foundry was, outside the bulwark proper. Moreover, a letter addressed to King Philip IV by Governor Sabiano Manrique de Lara in August 1663 clarifies why San Diego was informally called the *Fundición*—because of its proximity to the foundry, from which a passageway apparently connected to the interior of the bulwark.

There is another problem the archaeological excavation of San Diego hoped to solve: the nature of its three circular structures. Unquestionably, this site was where the first stone tower of Nuestra Señora de Guía had been built between 1585 and 1587. But to confirm or acknowledge this fact (Gatbonton 1980:25) is not to say the three circular structures are the ruins of the first tower. For safety's sake, the excavation team did not dig below the first layer of casemates belonging to the third circle. Both the consultant-engineer and the project architect felt that further excavations would imperil the structures. What is certain is that the structures are the oldest in the complex. The first and second circular structures are of a much later date—built around the time that the Bastión was being used as a cistern.

THIS MONOGRAPH is meant to help document the archaeological excavation in Bastión de San Diego: to trace and analyze the various elements which come to light; and to offer physical and historical data for the conclusions the writer offers. On behalf of the Intramuros Administration, I wish to acknowl-

edge the help of the researchers and technicians of the National Museum who worked on the project. Miguel Acción Jr. and Ernesto Maloles, technicians, and Helen Hosillos, artist-illustrator, stayed with the project from June 1979 to December 1982. Acción devised the special vertical grid system for recording the stones *in situ*. Hosillos improved the method of recording and Maloles invariably worked Saturdays to supervise the excavation.

Armando Buenaventura Jr., stone technician of the Intramuros Administration, took charge of accessioning and logging dismantled stones; he also did some of the illustrations used in this monograph. Messrs. Fernando Alborque, Carlito Duatin, Geoffrey García, Jaime de León and Eugenio Panaligan measured and plotted this part of the wall. The work of the Philippine Navy Seabees unit under Lieutenant Tomás Bano and that of the laborers of the Intramuros Administration should also be acknowledged. And thanks are due Ms. Asunción Albert, Ms. Celestina Boncan, Ms. Imelda Obusan, Ms. Rosalinda Aguilar and Mr. Carlos G. Manabat, all from the Research and Publication Division, Intramuros Administration, who helped in collating and translating materials, compiled pictures and data needed for the archaeological research and writing of this monograph.

I wish to acknowledge the work of the architects assigned to restore Bastión de San Diego, Mr. Felix N. Imperial Jr. of the Intramuros Administration and Mr. Oscar Villaruz of the National Museum; also, Mr. Emilio Morales, M.S.C.E., for the reconstruction drawing of the roofing of Bastión de San Diego based on the archaeological documentation and the patient explanations given this writer regarding cisterns, and Mr. Octavio Barranco for his help in translating some of the original Spanish texts.

I wish to record our debt to Minister Jaime C. Laya, Action Officer of the Intramuros Administration, who indulged us (in both time and money) in our collective wish to carry the work through; to Dr. Jesús Peralta, who supervised the entire archaeological operation and sat with us for technical discussions; to Mr. Alfredo Evangelista, officer-in-charge of the National Museum; and to Ileta Catedral Buenaventura, who supervised the production of this monograph.

ESPERANZA BUNAG GATBONTON
September 1984
Intramuros, Manila

Part I

Historical Background

DURING the governorship (1571-72) of Miguel López de Legazpi, the founder of Spanish Manila, the only fortification in the city enclosed what had been Rajah Sulayman's palisade of palm logs and banked earth—though even then the city limits extended well beyond the Malay settlement to encompass what is today the Manila Cathedral site and adjoining land up to where San Agustín Church still stands.

In September 1574 an impending attack by the Chinese Limahong spurred the Spaniards to work on the city's defenses. They hastily extended their barricade from the main Fort Santiago at the mouth of the Pasig River southward along the seashore—ending roughly where the Bastión de San Diego was later to be built. This makeshift wall was made of "boards, stakes and boxes and barrels filled with sand" (BR IV:32). After the successful defense of the city against the Chinese marauders, Spanish carpenters and Filipino laborers built a more sturdy wooden fort in its place (BR IV:37). How far this wooden fort ran, the archives do not tell us. However, we may safely surmise it did not yet run the full extent of the walled settlement we know, for Francisco de Sande (1575-80) writes in 1576 that "he would not leave the friars [Augustinians] outside." At this time the fort was described as "a palisade with joined keys, all along the shore and across the river; and a cavalier for defense—where some artillery is to be mounted . . ." (BR IV:79-80). A cavalier is a raised earth platform intended for lookout purposes or gun emplacements.

The following year, Sande gives us a complete description of the fortification:

I have all the river staked in, as also the point by the sea; and have had the latter filled in with earth until it is all level. . . . I have had the fort of this city re-

paired, building ramparts where they were lacking, so that one may walk around it on the rampart. I have covered the cavaliers, although communication may be had between them at a pike's length. . . . The floors [have] been covered with wood, so that the pieces of artillery may be dragged about more easily (BR IV:116).

The cavalier on the southern seafront built by Sande antedates both Nuestra Señora de Guía and Bastión de San Diego, which was to be familiarly called *Baluarte de la Fundición*, or simply, *Fundición*. The other cavalier was located farther up to the east, near Bastión de San Andrés. Its history proper begins with Santiago de Vera (1585-90), the governor-general who collaborated with the Jesuit Fray Antonio Sedeño in building the first stone tower of Manila.

THE DEFENSES built up during Sande's time had been allowed to fall apart by the time of Vera's arrival. The new Governor found the main fort run-down; there were no defense positions in any other place, not even on the seacoast. Presumably, even the embankments stretching from the river to the sea that Sande had built had not been maintained; for Sande had been confident they would "always be stable, if repaired from time to time" (BR IV:116). The Spaniards may have found the work both tedious and costly. In an undated letter to King Philip, Vera writes of the daily repairs the old wooden fort needed; stone and lime—much better materials for fortification—are available. Fortunately for the new governor-general, he was not alone in so thinking. The builder Fray Sedeño and Domingo de Salazar, O.P., Manila's first bishop, thought similarly and supported Vera's new building policy. Bishop Salazar himself is recorded to have taken many *banca* rides up and down the Pasig River, looking for quar-

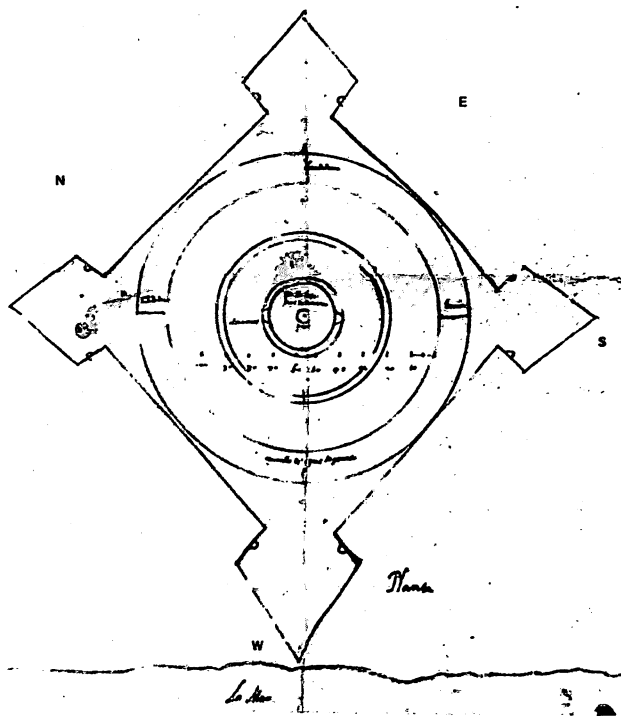


Figure 1. Plan kept at the Archivo de Indias, Seville, presumed to be that of Fort Nuestra Señora de Guía, circa 1587.

ry sites (BR VII:205). Fray Sedeño is credited with having taught the Filipinos and the Manila Chinese how to make bricks and roofing tiles. The plan for the *Nuestra Señora de Guía*, referred to as *torreon* or *fortaleza* in the Spanish texts, is also attributed to Sedeño (BR XII:198).

In an undated report to Madrid, Santiago de Vera describes this stone tower and attaches a plan, which presumably is that of Fort Nuestra Señora de Guía (Figure 1). The date tentatively attributed to the plan by the Spanish scholar Lourdes Trechuelo is 1585 (Trechuelo 1955:40). De Guía has certain features that relate it to the present ruins of Bastión de San Diego—notably, the three circular structures. However, available letters of Vera and Gómez Pérez Dasmariñas (1590-93), who succeeded him as Governor-General, qualify the extent of the plan's influence on the present structure, and allow a more accurate dating of the stone tower.

Besides the undated letter, two letters of Vera to King Felipe II—dated June 26, 1587 (BR VI:299-300), and July 13, 1589 (BR VII:90-91)—touch on the building of the stone tower. The first of these letters indicates the project had already begun: "I have constructed a stone tower on the said beach . . ." In ordinary circumstances, the phrase "have constructed," amplified further on as "already built," would

have meant the fort was finished or completed. But his letter of 1589 qualifies its meaning.

The fort, which as I had written to your Majesty was being built, was shaken when about completed, in three places. . . . I am constructing cavaliers which are to serve as buttresses for it. The principal part, that toward the sea, is finished (BR VII:90-91).

In the first letter, the Blair and Robertson translation uses the term "stone tower" in obvious reference to Fort Nuestra Señora de Guía; and "handsome fort," which Vera distinctly locates downstream by the river, is used in reference to Fort Santiago. In the second letter, in which Vera writes of the fort that "was being built," the reference clearly points to Fort Nuestra Señora de Guía, since Vera qualifies it as the fort damaged in three parts, and needing additional cavaliers to support it. Thus, we know for certain that in the letter of 1587 the phrase "have constructed" does not mean the stone tower had been completed, since at the time of its partial destruction the project was only nearing completion. It becomes reasonably certain that the cavaliers were built after the tower had been damaged—"shaken"—they were a remedy called for by the situation and not by the original plan.

A letter to King Felipe II by Gaspar de Ayala on July 5, 1589 (BR VII:125), confirms the above conclusion: "The fort which is being built of stone, has been fractured in some places. . . . It seemed as if it could be made secure by building three buttresses with cavaliers and this work is now being done." That both repairs and revision to the fort were carried out is confirmed by a letter of Gómez Pérez Dasmariñas in 1592, also addressed to the King:

. . . Although that already built was called a fort, it is not one, nor can it be of use; for it is but a large tower, badly cemented, and was falling in four places. It was braced by four cavaliers, and cost your Majesty a large sum, as I have written (BR VIII:239).

Apparently, more damage had been caused than originally estimated, for a fourth cavalier was added to the three first discussed.

The issue whether or not to build the type of stone tower Fray Antonio Sedeño designed had precipitated a controversy among the Spanish residents of Manila. For while the stone fort was advanced by Manila's standards, it was not in keeping with the state-of-the-art of fortification then current in Eu-

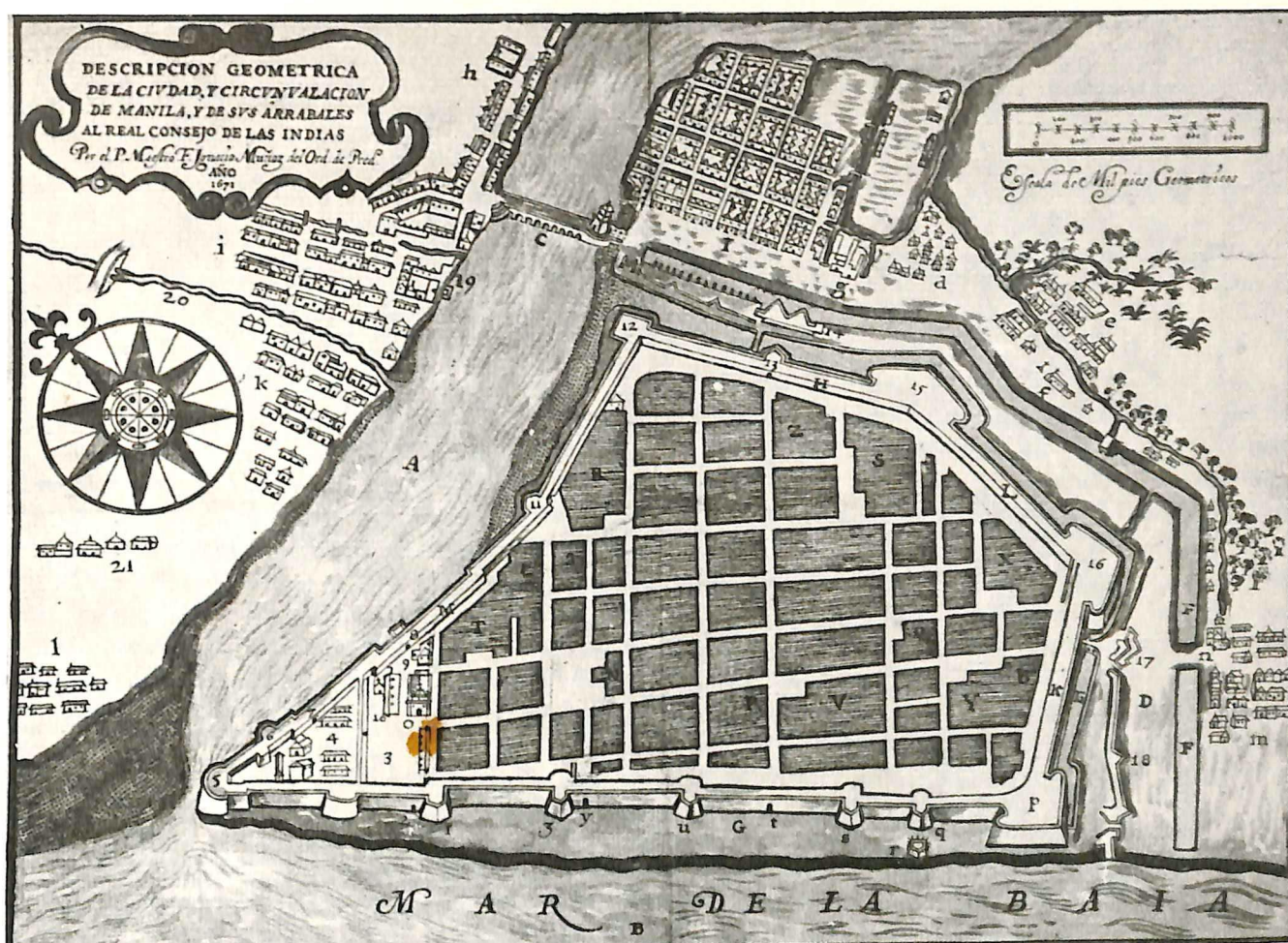


Figure 2. The plan of Manila as drafted by Fray Ignacio Muñoz, O.P., dated 1671. It shows the Bastión de San Diego in the familiar shape of the ace of spades. The first outwork of the fortification by the seaside is recorded here on the very site where the Fortín de San Pedro stands.

rope. Juan Bautista Román, provisioner of the Real Hacienda, expresses such an opinion in a letter to the King dated 1588, where he argues that a more modern building supported by three cavaliers could have been built, instead of the antiquated round fortress (BR XXXIV:401).

Thus I am inclined to think Vera's report was written in defense of such criticisms. Trechuelo herself suggests the last paragraph of Vera's letter could have been a direct reaction to that of Román's (Trechuelo 1955:43). It appears fairly certain Vera wrote the undated letter after 1587 and before July 13, 1589. Both letters give explicit account of the events that had taken place—the building of the stone tower and then the damage to it even before it could be finished. In the light of these two letters, Trechuelo's tentative date for the undated plan (1585) is I think much too early, since the plan al-

ready shows where the fissures or cracks—marked *hendadura*—are located in the structure (Trechuelo 1955:40). Then also, the plan already contains the drawings of the buttresses mentioned in the accompanying account which prior to 1589 had not been built, as Vera himself attests (Trechuelo 1955:388). The omission of the cavaliers was precisely the root of the problem; as Ayala points out, "if the cavalier had been built at first, much money could have been saved" (BR VII:125). Thus we may assume that even before its completion, inherent defects in the structure had already posed certain problems.

The stone tower's location near the waterfront was partly blamed. The boggy terrain could not have provided a stable foundation for such a heavy structure. Even in the eighteenth century, when extensive backfilling near Bastión de San Gabriel had been completed, engineers would still be alarmed at the

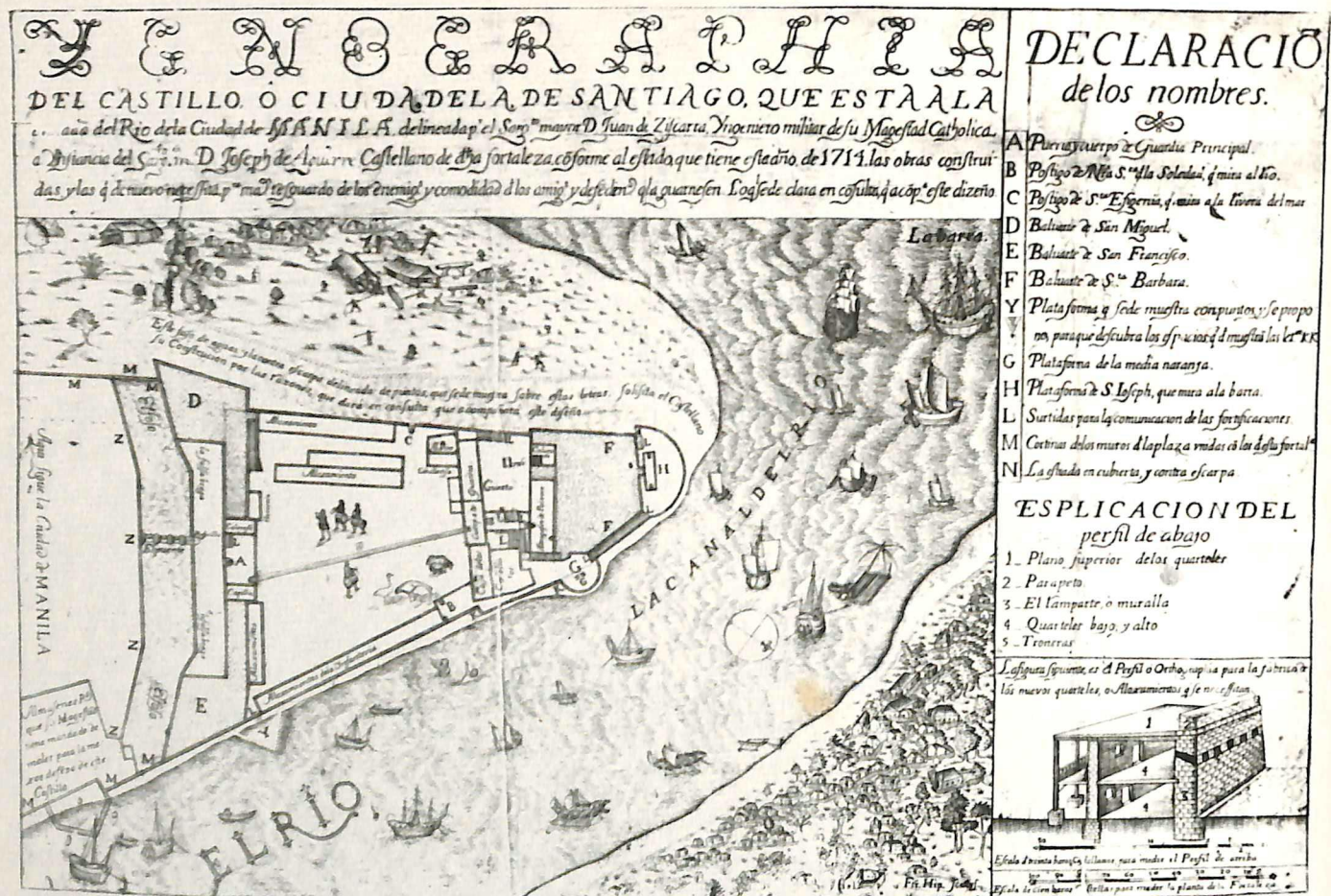


Figure 3. Plan of Fort Santiago showing the outer moat and beachhead at the point where the Pasig River joins Manila Bay. Juan de Ziscarra dated 1714.

speed with which their stakes sunk in the ground (Trechuelo 1955:132). What had "shaken" the structure might have been its weak foundation. Vera's own account attributes the damage to earthquakes. But there are no supporting accounts that refer to any "great earthquakes" having occurred during that period.

Its round form was another defective factor. It was not specifically stated why its shape had caused damage, but one can perhaps infer that its heavy weight and round form caused rapid sinkage. The use of too little cement compounded the problem.

The plan appears to have incorporated changes and additions to the original structure. For instance, the cavaliers and ramparts were clear additions to the original structure, while the two circular structures could not have been part of the original plan, at any rate could not have been the same structures standing now. Vera refers to another round wall sur-

rounding the patio. But even if this wall had existed, it definitely had nothing to do with the present second and first cylindrical structures. For their mode of construction and finish—even their floor levels—do not match those of the oldest structure. Accounts on the fortification available to us do not mention the inner circular structures. While archaeological excavation of the bastion exposed three circular structures, the two inner circles appear to belong to another period, of a later construction, having no relevance to the third outer circle.

HISTORICAL DOCUMENTS, including maps and working plans, locate Fort Nuestra Señora de Guía exactly where Bastión de San Diego now stands. However, Robert Reed, who in 1978 wrote an intensive and masterly study of how colonial Manila developed organically in the context of Hispanic urbanization, locates Vera's stone tower where the Fortín de San

Pedro stands, and another stone fortress where Bastión de San Diego now is. This is clearly shown in the map re-created by Reed, which traces the development of the walled fortification from 1576 to 1650 (Reed 1978:46). Reed also locates the stone breastworks from the Almacénes up to Puerta Isabel. But as we shall see in Dasmaríñas' letter of 1593, the breastworks extended only along the riverside frontage of the fort itself up to the moat. The river frontage further down stretching to Bastión de San Gabriel was left open, for it was considered secure enough (BR IX:61-62).

Having relied on the same sources as Reed, particularly Vera's letter of 1587 (see Appendix 1), I find it necessary to comment on his maps. In locating the stone tower outside the wall and the stone fortress where San Diego actually stands, Reed may have been misled by the ambiguous use of the words "bulwark," "fort" and "fortress." The word "bulwark" is used twice in Vera's letter, both times in relation to the wooden fortress the stone fortress is replacing:

In place of the wooden fortress I am going to build a bulwark to defend the entrance to the river and the beach. . . . Along the riverbank, I have ordered stone breastworks to be built extending from the old wooden fortress on one side where the stone bulwark is to be built. . . .

The translation makes no distinction in the use of "fort" and "fortress" (the latter, normally, is more than just a stronghold: it encloses a small town as well). The "old wooden fort," the "handsome fort," "fort," "wooden fortress" and "new fortress"—all these invariably mean the location of the old Malay stronghold of Sulayman. The only instance usage becomes defined is when "bulwark" is used specifically to refer to the structure that will defend the entrance to the river and the ditch. This usage also indicates that the bulwark and the fortress are contiguous: the bulwark being the frontage of the fortress on the promontory, while the fortress contains the bulwark between its peripheral walls. Thus, the "wooden fortress" of old was replaced by a strong fort with a bulwark; while the stone tower is none other than Fort Nuestra Señora de Guía, built on the site of the southern cavalier constructed by Sande.

It is important to note that outworks like ravelins or *tenaille* and *fortíns* did not appear in Plaza de Manila until the middle of the seventeenth cen-

tury. Dasmaríñas' report bears this out, when he narrates to the King that he had "reduced it [Fort Nuestra Señora de Guía] to such a shape that it will be of use, by joining to it a defense of cut stone about as high as the fort [Fort Santiago] and a rampart that commands all the country and part of the sea" (BR IX:61-62). Thus, it would be inaccurate to locate the stone tower outside the demarcated line of the fortification—that is, to locate it on the site of Fortín de San Pedro as Reed had done. By 1593 the only completed projects along the seacoast were the rebuilt fortress of Santiago with its stone bulwark and traverses; the curtain wall and the remodeled tower.

Similarly, it is unlikely the ditch Vera had excavated began from the beach close to Fort Nuestra Señora de Guía and ran eastward,¹ inland, to join what appears as a natural inlet from the Pasig River around the point where Puente de España would be built, to the corner of Bastión de San Andrés, as in Reed's map. The distinguished Jesuit scholar and historian, Horacio de la Costa, interprets Vera's letter as does Robert Reed. This is evident in this paragraph from de la Costa's *The Jesuits in the Philippines, 1581-1768*.

The system devised by De Vera and Sedeño was based on a tower at the southwest corner of the city from which light artillery could command both the beach and the southern approach. This was constructed first; wings with covered platforms for heavy artillery were added later. From this point a ditch was commenced to run east along the city line and then north between the city and the marsh to the Pasig River. It measured 34 feet across and was being dug deep enough so that even at low tide it floated the barges that brought in the materials for construction. It was not yet finished when De Vera reported to Philip II in June 1597 (de la Costa 1967:109).

However, Vera's letter appears to merit another reading in view of other data that come to light when we evaluate what had actually been accomplished during that time, and in relation to other documents of the period.

For one thing, the system of moats was not introduced until the first quarter of the seventeenth century, when a *Real Cedula* (1620) commanded its construction, in the face of the constant threat of

¹The general orientation of Intramuros locates the riverside as pointing northwards; Bastión de San Diego or the tower points to the south while Fort Santiago faces west and Bastión de San Andrés, eastward.



Figure 4. An overview of Intramuros drawn by Antonio Fernández de Rojas, dated 1729. This map was taken by Brigadier General William Draper during the sack of Manila, 1762. It is now kept in the British Museum.

Dutch invasion (Trechuelo 1955:55). Román's complaint to the King in 1588 precisely laments the lack of "moat and platform" (traverses) to protect the settlement (BR XXXIV:402). The first moats built outside the city were done during the administration of Alonso Fajardo (1618-24). They were meant to provide alternative waterways for the Walled City, should an enemy occupy the river mouth and succeed in blocking communication and deliveries (Trechuelo 1955:55).

Thus the building of the ditch—if it was ever begun—was never completed. (De la Costa himself notes the project had not yet been completed in 1587.) We are left to conclude its finish was merely anticipated in Vera's report. The unexpected collapse of the tower may have reordered priorities in the use of both manpower and budget, necessitating postponement of the ditch-digging.

Incidentally, Governor-General Gómez Pérez Dasmariñas never once referred to such a moat. His letter of 1593 describes the fortification thus:

And now this city is enclosed by sea and land, so that one small portion fronting the river is open between that and the fort of the point. This has not been enclosed, because the open space is so small, and it fronts on the river between the fort of the point and another cavalier named Sanct Gabriel which has been built there (BR IX:62).

The city, therefore, did not form an island as Vera's report in 1588 (BR VII:58) claims. But that he had actually started construction of a ditch may be gleaned from another letter written by Dasmariñas in 1592.

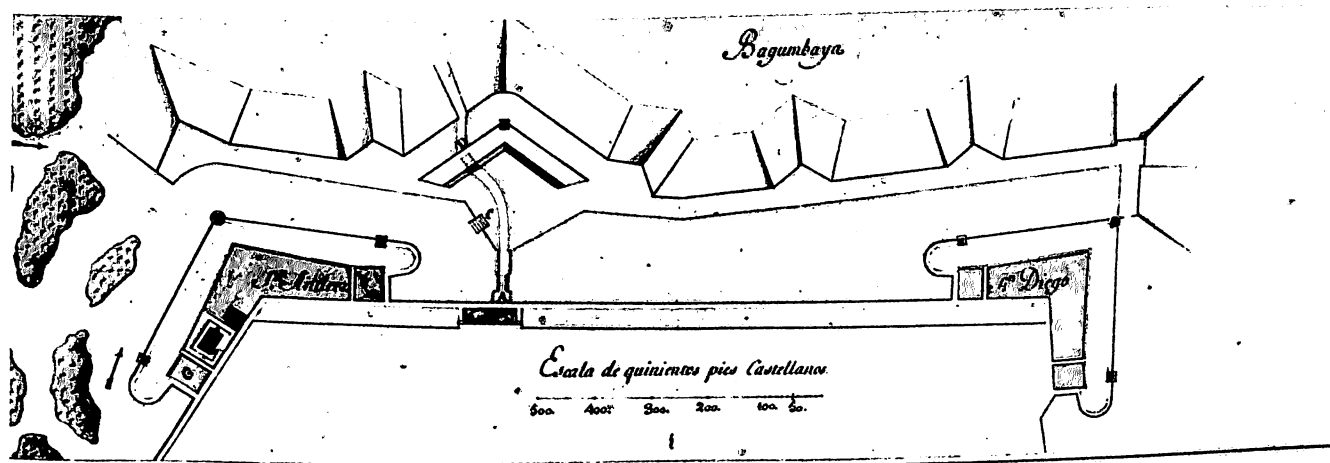
The creek of the sea stretches up to the fort, in all about one thousand brazas in length; and while it would not do more, it will serve as a very good trench (BR VIII:271).

Dasmariñas was definite about the fort he was writing about—"the fort at the point, where a fort was being built"—meaning to say, Fort Santiago. This

"creek of the sea" may not have been a natural rivulet but one manmade; the one begun by Santiago de Vera, which the new Governor-General finds sufficient for a trench. And whether the excavation began at Fort Nuestra Señora de Guía or at the promontory is immaterial, since it would serve no other purpose than to reinforce a reading of which fort is being identified; but to interpret it as located along the coastline would partly substantiate Vera's statement that "the ditch extends from the sea to the river."

Could such a wide canal be built along this coastline? And why build a canal here when the sea offered natural protection? To the first question, the answer is that it would seem so. This opinion can be supported by the maps of Juan de Ziscarra dated 1714 (Figure 3), of Antonio Fernández de Rojas, 1729 (Figure 4), and of Buzeta and Bravo, 1850 (Figure 13); the first in fact already shows a moat around Fort Santiago. It is true that the earlier

map of Fray Ignacio Muñoz, 1671 (Figure 2), fails to do so. His map sketches a narrow coastline and places the bulwark of Fort Santiago right on the tip of the promontory. Nevertheless, I think the evidence present in the succeeding maps is authoritative enough. The total span from San Diego to Fort Santiago's inner perimeter wall and moat equals approximately 5,500 feet—give or take, it covers Dasmariñas' "1,000 *brazas*." The second question may be answered by the fact that in the sixteenth and the early part of the seventeenth century, the Spanish feared most invasion from the sea, and the purpose of an additional trench on this shoreline was to prevent the enemy from decamping as close to the walls as possible. The construction of moats along this very same shoreline in the seventeenth century was based on this same principle. Similarly, building a canal along the inner perimeter wall of Fort Santiago served as a deterrent to the enemy, denying them easy access to the walls.



Planta de la Certina de Sta. Cu. q. mira al Puerto de Bagumbaya con sus Obus Exteriores renovados en el Gobierno del Sr. Brigadier D.ⁿ Fernando Valdes Tamon Cavallero del Ord.ⁿ de Santiago &c. y tambien sus Baluartes Colaterales, en Espec.^l del Sr. Andres onde se fabrica nuevam.^{te} el Almacen de Polvora. Manila y Junio 4. de 1734. años

- A. La Puerta Real
- B. Cuerpo de Guardia
- C. Embarcadero q. se hizo p.^a facilitar la Conduccion de los Matorrales de su Magestad.
- E. Cuerpo de Guardia a la subida del Baluarte.

- F. Almacen de Polvora a prueba de Bomba, capax de 500. Anos teniendo de grueso 9576 pies cubicos, hasta el nacimiento de la Puerta.
- G. Cazamata al uso antiguo, con dos troneras.
- D. Portada del Recuellin (cuya Bobeda se renovo) onde se puso una inscripcion esculpida en piedra viva del Reino de nuestro invicto Monarca.

La Contracapa y el Rampeto son de Cal y canto por lo pantanoso del terreno, pero todo a lo Moderno, haviendo Empalmada al pie del Rampeto.

Figure 5. The plan of 1734 submitted by Valdés Tamón illustrating the garita and two other structures on its rampart. The plazas baxas recorded in the O'Kelly plan of 1770 already appear here.

HAVING CLEARED UP the physical location of Fort Nuestra Señora de Guía and the circumstances attending its construction, we have another historical aspect to discuss—the exact nature of the renovation or changes Dasmariñas introduced into the structure. There is need for such an evaluation, because of the different impressions given by written accounts concerning this single renovation.

The Blair and Robertson translation of the Morga chronicles of 1609 summarizes Dasmariñas' activities in this manner: "His first labor was the walling. . . . He razed to the ground the fort of Nuestra Señora de Guía" (BR XV:66). Morga's own text in the Retaña edition reads: *arraso de los altos la fortaleza de Guía, que hauia su antecesor. . . .* (Morga 1910:22). In 1698 Fray Gaspar de San Agustín, S.J., gives this account: *Fundó Santiago de Vera una hermosa Fuerça de piedra a la parte de tierra . . . que puso por nombre N. Señora de Guía, sitio muy importante de fortificar . . . en que la Ciudad estaba sin murallas; las quales edificó su sucesor el año de 1590, demoliendo dicha Fuerça. . .* (San Agustín 1698:434).

The meaning of "razed to the ground" appears consistent with the usage of the word *arraso* (to demolish, to raze, to level), and also with San Agustín's *demoliendo*. The ambiguity exists in Morga's phrase *arraso de los altos*, which could mean demolished either *from* the top or *at* the top. Blair and Robertson chose the first meaning, but Dasmariñas' own account (also translated by Blair and Robertson) causes some doubts about the accuracy of this translation. Excerpts from his letters of 1592 and 1593 give the following accounts:

Although that already built was called a fort, it is not one, nor can it be of use; for it is but a large tower, badly cemented, and was falling in four places. It was braced by four buttresses which were called cavaliers . . . Everything is now being rebuilt in order to put the fort in good condition (BR VIII:239).

and

This fort having fallen, not having been properly constructed and so that it was of little or no use, I have reduced it to such shape that it will be of use, by

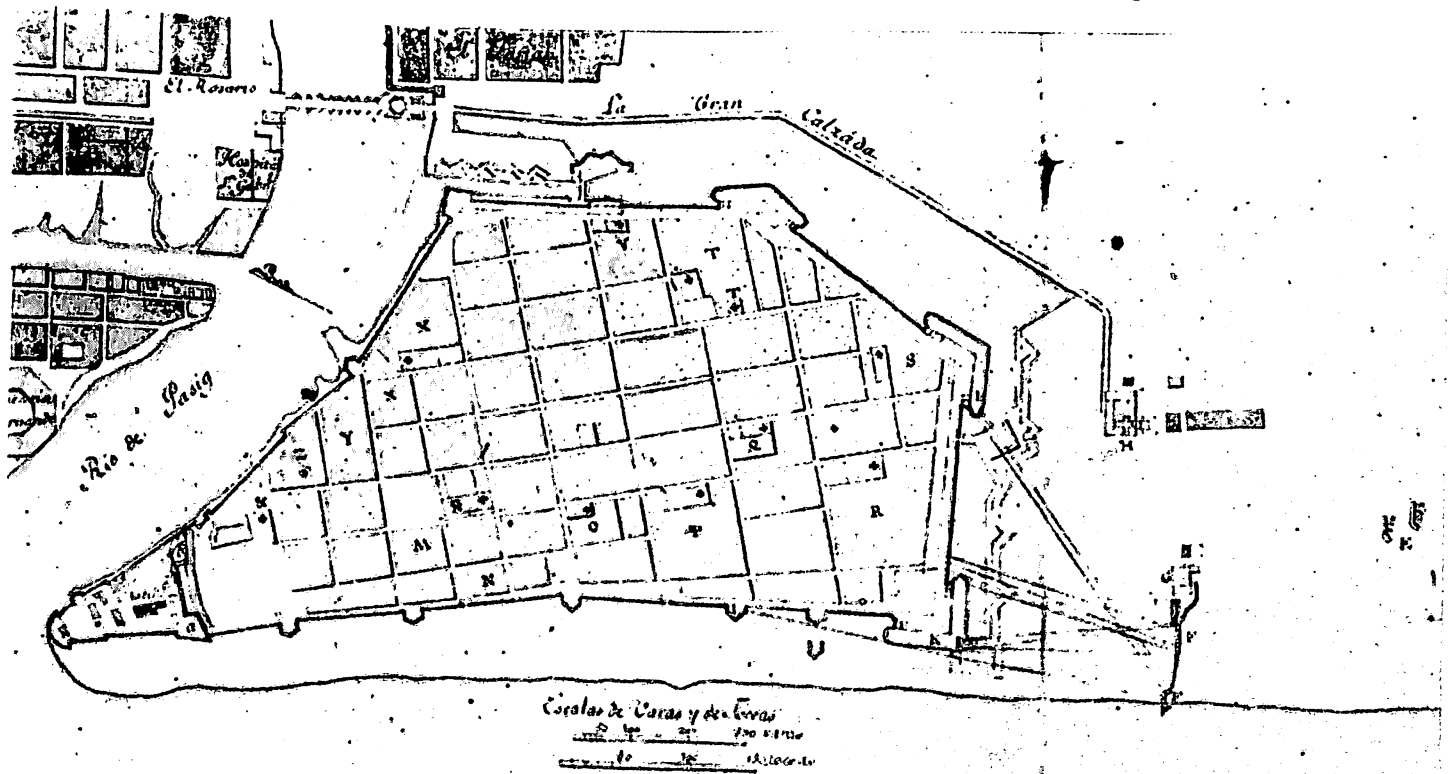


Figure 6. Plan submitted by Tomás de Castro y Andrade showing the status of the wall during the British Occupation, indicating sections affected by British bombardment. Presumably submitted after the British Occupation.

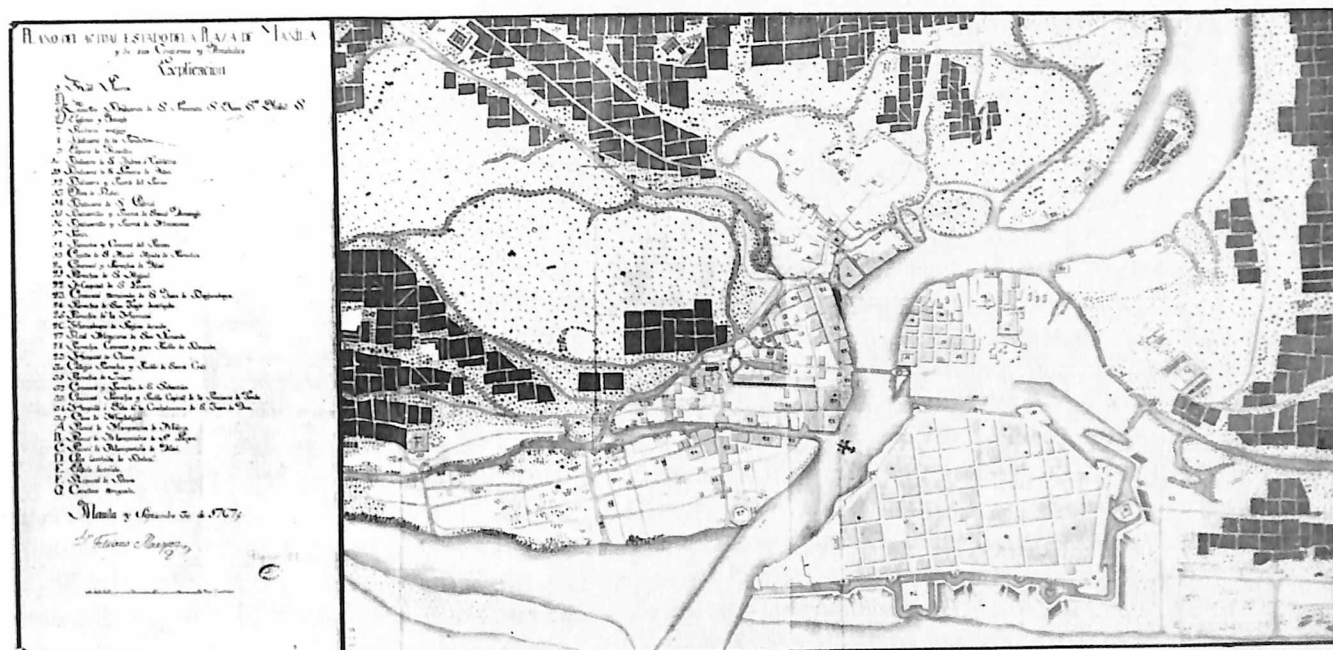


Figure 7. Plan submitted by Feliciano Márquez dated 1767 showing the state of the fortification after the British invasion.

joining to it a defense of cut stone, about as high as the fort and a rampart that commands all the country and part of the sea (BR IX:61-62).

Despite the word “rebuilt” in the first letter, the second one makes explicit the fact that the fort was not completely demolished: it was only “reduced” to a more convenient shape and joined to the curtain wall. Thus, it would seem the free-standing remodeled fort was, in Dasmariñas’ time, joined to the encircling fortification and had its height reduced to that of 2-1/2 *estados*, or 4.37 meters.² Santiago de Vera gives the height of the embrasure as 2-1/2 *estados* and that of its wall as more than 5 *brazas*, or 9.15 meters³ (Trechuelo 1955:385). In the same *relación*, the height of the tower is given as 8 *brazas*, representing perhaps, the combined measurement of the embrasure and the wall—the differences in the given measurements might be explained by Vera’s vague estimate as indicated by his use of “o mas,” or more.

Juan Bautista Román calculates the height of the stone tower as 7 *brazas*, or 12.81 meters. This more or less fits the measurements given by Vera, if the height of the embrasure is added to that of the

wall. It indicates that Dasmariñas knocked down a good nine meters of the tower.

Santiago de Vera describes the stone tower as having two stories. The upper floor was used as quarters for its garrison and storage for provisions and ammunition; the lower portion with its adjoining courtyard was useless for either lodging or storage despite its roominess, because of the hot and humid climate. He mentions the vaulted casemate and the thick beams used on the first floor that gives adequate support to the walls even in case of artillery attacks. There was supposed to have been another circular wall surrounding the patio within the tower. To Vera’s account, Román adds a depreciatory description of the tower, referring to it as a “a rounded pile of stones in the old style, having seven arms on top, covered with tiling” (BR XXXIV:401). Morga, more helpfully, names the facilities it contains—a well, a court, quarters, magazines and workrooms. He also adds, “It has a traverse extending to the beach, on which are mounted a dozen large and moderate-sized pieces, which command the bay and sweep the wall, which extends along the shore to the gate and to the fort of Santiago” (BR XVI:138).

Though these accounts do not give us a clear picture of the tower, Román’s comment regarding the “loopholes” suggests these were some of the features corrected by Dasmariñas, adding instead

² 1 *estado* is equivalent to 2.7 yards.

³ 1 *braza* is equivalent to 6 feet.

ramparts from which artillery fire could be maneuvered to the enemy position. That such corrective measures had been carried out may be gleaned from Morga's mention of the traverse from which positioned artillery commanded a sweep of the bay up to Fort Santiago and the Gate of Puerta Real. What remained then of Vera's handiwork would be some 2.62 meters of the round fortification. Possibly the four buttresses were in time removed, since the newly built curtain wall would have made them superfluous: the curtain wall by itself was able to pinion the structure to the rest of the wall.

The third circular structure is positioned well within the present bastion; practically three-fourths of the quadrant remain outside the curtain wall. Proceeding on the premise that today's walls followed the original (inner) peripheries defined by Dasmariñas, it would then follow that the curtain extending from Fort Santiago to Bastión de San Diego onto Puerta Real affected the northwestern and northeastern cavaliers. It becomes possible to think that Dasmariñas further modified the Fort of Nuestra Señora de Guía by removing the four protruding cavaliers while keeping the retaining ramparts, so that this time the fort was not round but quadrangular.

A panoramic view of Manila painted on the lid of a chest kept in the Museo de Arte José Luís Bello y González in Puebla, Mexico, shows the Fort of Nuestra Señora de Guía—not with rounded sides but with a rather rectangular flattened exterior. If this rendering can be credited with historical accuracy, then one can draw on it to support the idea that Dasmariñas removed the protruding cavaliers but kept the retaining walls, converting them to traverses. This would have sufficiently changed the original rounded shape of the tower. The Puebla vista possibly depicts Manila after the fire of 1603, the period following Governor Dasmariñas, when no major changes were done in Bastión de San Diego itself.⁴ Governor-General Francisco Tello (1596-1602) and Governor-General Pedro Bravo de Acuña (1602-06) did no more than raise the height of the walls of the entire fortification. Succeeding officials attended to the repairs and general improvements of the walls

⁴The Puebla panorama shows the city already rebuilt, with the stone churches of San Agustín (1607), San Francisco (1602) and the Cathedral (1614) identifiable. The moat between Bastión de San Gabriel and Bastión de San Andrés appears operational. It may have extended farther up. No outer defenses are recorded—which certainly dates this earlier than Sabiano Manrique de Lara (1653-63). The painting also records the location of the Parián across the Pasig River.

but concentrated on rebuilding other parts of the walls, especially Fort Santiago.

During the administration of Don Diego Fajardo (1644-53), many changes were introduced into the bastion; by which time it had lost its formal name of Fort Nuestra Señora de Guía. Being acutely aware of impending Dutch attacks, the new governor-general commanded his *sargento-major* and commander of the garrison to exert every effort and spare no expense in making the walls of the city impregnable (BR XXXV:253).

The letter of Fajardo's successor, Sabiano Manrique de Lara (1653-63), to the reigning monarch on August 3, 1663, informs us of Fajardo's contributions. The stretch of walls running between the bulwarks of San Diego and San Nicolás de Carranza (Bastión de San Andrés) was considerably broadened; but Fajardo left the old walls intact, embedded between new adobe facings of equal thickness. This reconstruction left the bulwarks on opposite ends much recessed. To integrate them into the new curtain, these bulwarks were also extended outward, so that they jutted out of the main wall. San Diego's shoulder and ear facing the open terrain to the east measured 421 feet, or 126 meters, after its extension, while its seafront dimension reached 339 feet, or 101.7 meters, much less than its opposite side (Trechuelo 1955:391).

But, apparently, Fajardo for all the improvements he made, still left much to be desired—having failed to provide facilities for lodging the troops and the artillery. The Bastión was, nevertheless, impressive for its time—"a regal work, and the largest of its kind seen in these parts" (BR XXXV:253). The new works were badly affected by the earthquake of 1645, whose shocks reduced Manila to a pile of rubble and dust.

Thus, Manrique de Lara faced ten years of rebuilding ahead of him. So dedicated was he that despite debilitating attacks of rheumatism, he would help in the physical labor of actual construction. Manrique de Lara had the entire structure of Bastión de San Diego raised to 25 feet, or 7.5 meters. He also built a *gola*, or gorge, within the interior of the bastion. It measured 18 feet wide, or 6 meters; on top of it, looking over the casemates, the open terrain and the Plaza's interior, a watch tower, or *garita*, was erected.

The map drawn by Antonio Fernández de Rojas (1729) shows San Diego in its familiar shape of the ace of spades—with a long unbroken parapet and several structures, representing perhaps, the lodging

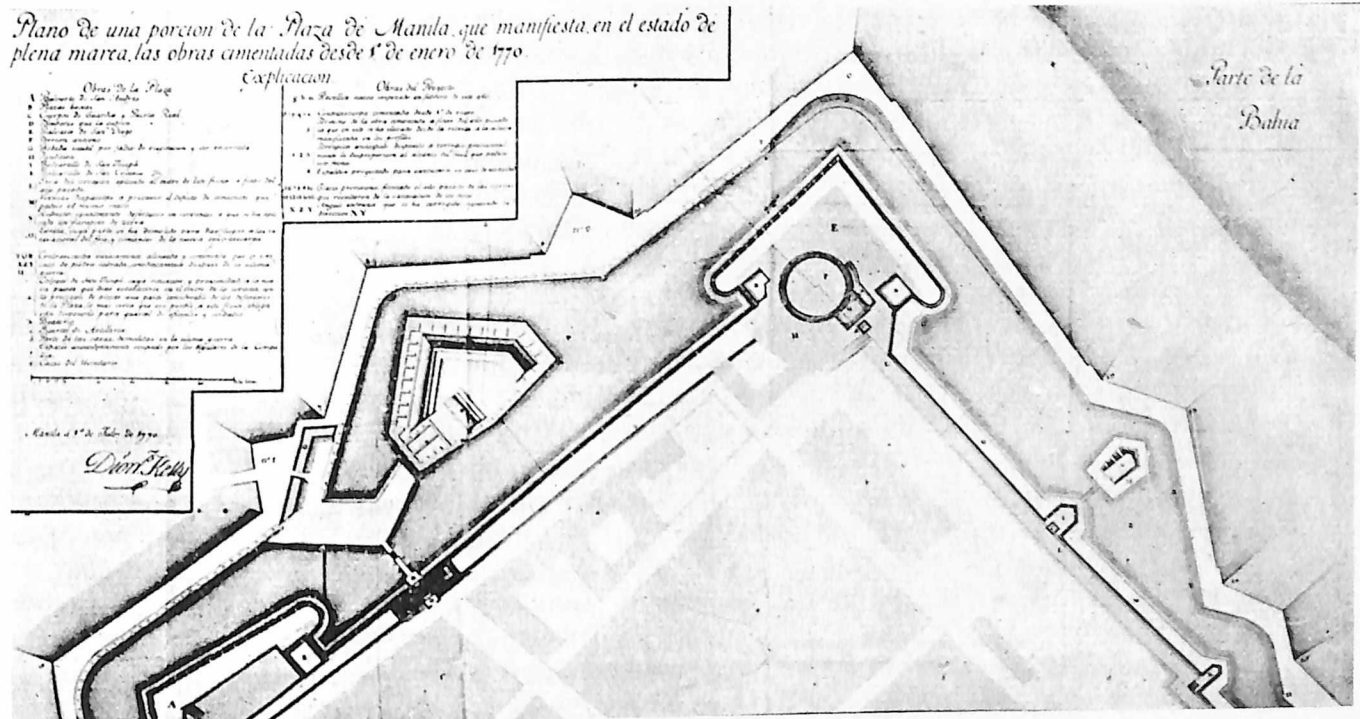


Figure 8. Plan submitted by Dionisio O'Kelly showing important features of Bastión de San Diego, acknowledging the existence of two subterranean courtyards described as "tomblike and airless."

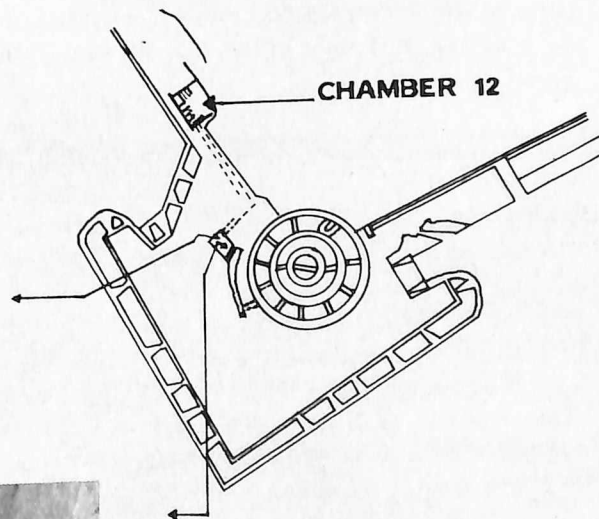
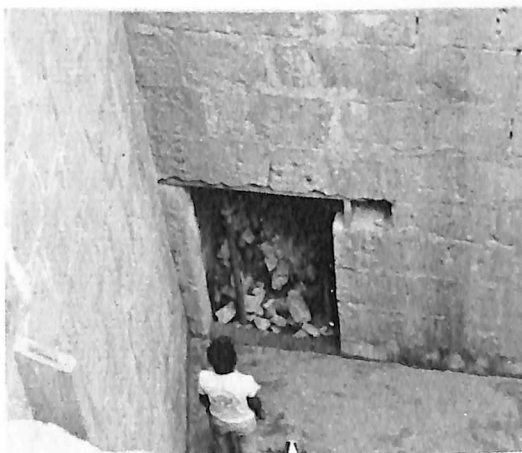


Figure 9. One of the submerged courtyards that coincide more or less with the bóveda illustrated in the O'Kelly plan of 1770. It faces to the north and probably connects through an underground tunnel to the exit-way along the curtain wall toward Bastión de San José.



Figure 10. This opening is located on the wall contiguous to that shown in the previous picture. It is oriented to the south and is connected to a narrow passageway with an archway at the end.

quarters of its troops. The ruins of Sedefio's tower—the circular structure—is shown integrated into the new bulwark; half of it juts outward from the interior curtain like half an orange or half-moon. A bird's-eye view of the circular tower is given so that only the northeastern view is seen. It shows three separately roofed buildings, entrance to one being on the left. The middle ground cannot be read clearly. Still, we are reminded of Morga's description: "It has its own courtyard, water supply and lodging quarters; there are also a magazine and workshops inside" (Cummins, trans. 1971:282).

On the same plane as the terreplein, one sees a spiral staircase leading into the yawning chasm, an arched opening meeting it at the base of the stairway. Along its eastern flank by the curtain wall, a stair leads down into the grounds of the Fundición. At the base of the stair, slightly flushed to the left, is a building abutting a series of structures all roofed under the stretch of wall that encloses the Fundición's courtyard. All face the interior Plaza.

Two subterranean courtyards are located close to the orillions; atop the bulwark, two squarish buildings are at the beginning of each orillion. The roundish *garita* is somewhat flushed away from the point of the bulwark. But right at the tip, one sees

a cannon pointed toward the sea, one of the 16 mounted on its parapet.

The shape of the bastion introduced in the mid-seventeenth century was greatly influenced by the design of Errard de Bar-le-Duc, engineer to Henry Navarre, and the modifications of its flank, made perpendicular to the line of the curtain wall, were an influence derived from the works of Count de Pagan of France (Bush 1903:436).

Bastión de San Diego remained in this condition until the British invasion of 1762. Finding the moat in front of the bastion quite dry and the Battery of San Gregorio in disrepair and unmanned (it stood where the Legazpi monument now stands), the British launched their attack from the church of Santiago, some 230 yards southeast of the bastion. For several days, 24-pounders battered the southeast face of the bastion and the curtain wall; they breached it on the twelfth day of the siege, October 6. Some 400 British soldiers stormed through the breach straight on to Calle Real, virtually unopposed (Bush 1903:441).

Gómez reports that the British repaired San Diego. Because of their short sojourn in Manila, these repairs may have been limited to repairing the crumbled walls. They also demolished the churches of

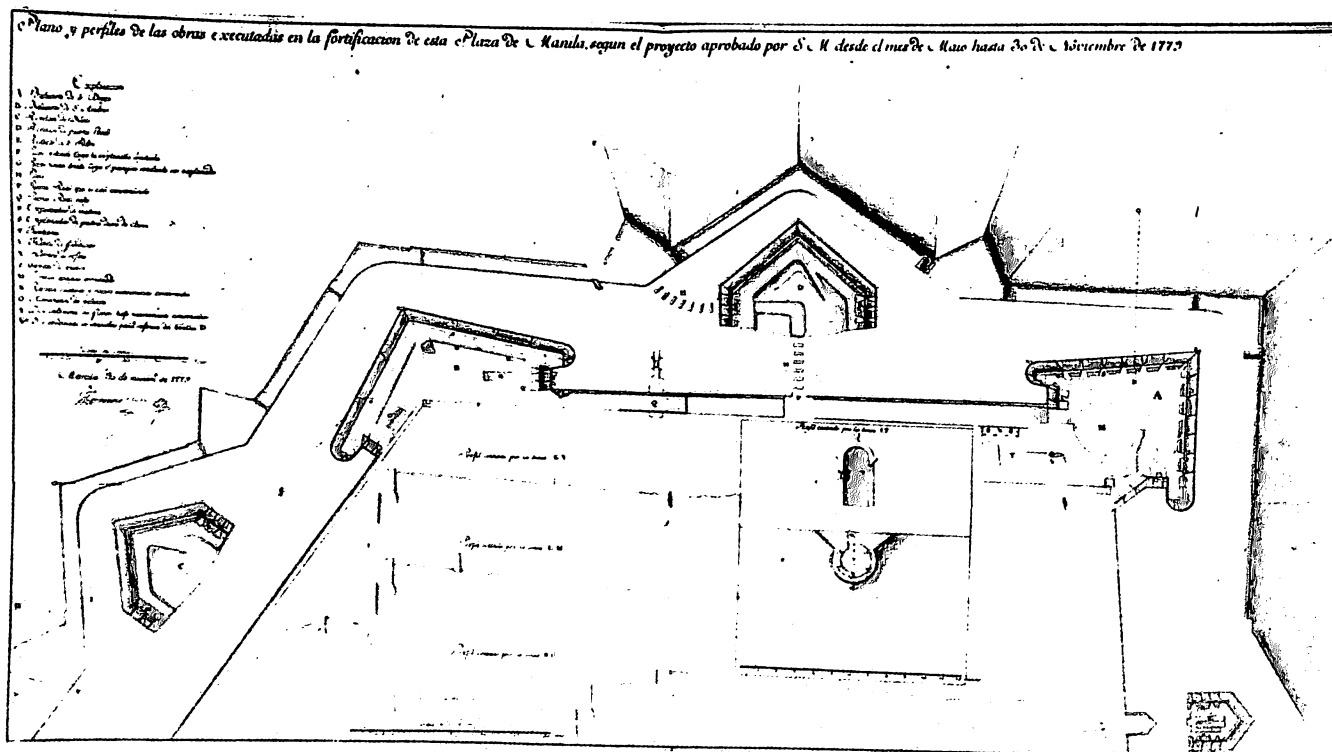


Figure 11. Plan of the fortification showing projects already implemented including the reconstructed *garita* of Bastión de San Diego.

San Juan and Santiago, long a subject of controversy between the religious and the military government. They also razed several houses built close to the walls.

The plan by Tomás de Castro y Andrade (Figure 6) indicates the areas affected by the bombardment. It only emphasizes the structure of the bulwark itself, showing it simply terraced with no indication of the old tower. This is also the case in the maps of Muñoz and of Buzeta and Bravo. The final stages in the rehabilitation and completion of Bastión de San Diego are limited within the years 1767 and 1785, as borne out by the maps drawn during this period. These are maps drafted by military engineers, who would take charge of repairing the walls: Feliciano Márquez, 1767; Dionisio O'Kelly, 1770 and 1771; Thomas Sanz, 1778, April and November 1779, 1784 and 1785.

The map of 1767 (Figure 7) signed by Márquez is important to this study because it records no change in the bastion since the immediate post-British period. The maps submitted by O'Kelly (Figures 8 and 35) show the circular ruins of the old tower marked "F" in the first plan. Another structure, marked "D," indicates the location of a vault declared useless for being tomblike and airless. It also includes two other structures, which also appear in the plan of 1731 of Tomás de Castro y Andrade. Labelled *plazas baxas*, they would approximate the interior courtyards of the Bastión de San Andrés. The latter, however, though submerged below the terreplein, is elevated from the present street level. San Diego's low courtyard located on the southwest, parallel to its flank, is on the same level as the present street. Archaeological excavation confirms the existence of one such *plaza baxa*; that supposed to exist on the east side has not been verified, as this part has caved in. The existence of the old tower's ruins is confirmed in the maps submitted by O'Kelly and Sanz (Figures 8 and 11). Nowhere in the succeeding maps of the walled fortification would appear the cistern excavated in the archaeological exploration, represented by the inner circular structures. A microfilmed document on the fortification at the Ateneo de Manila Library gives a clue to what may have happened.

This document is dated 1764—*Plan formado en virtud de providencia gubernativa del estado que tenia la Plaza cuando la tomaron los Yngleses acompañando otro plan del nueva fortificaciónes* (Plan commissioned by the government on the condition of

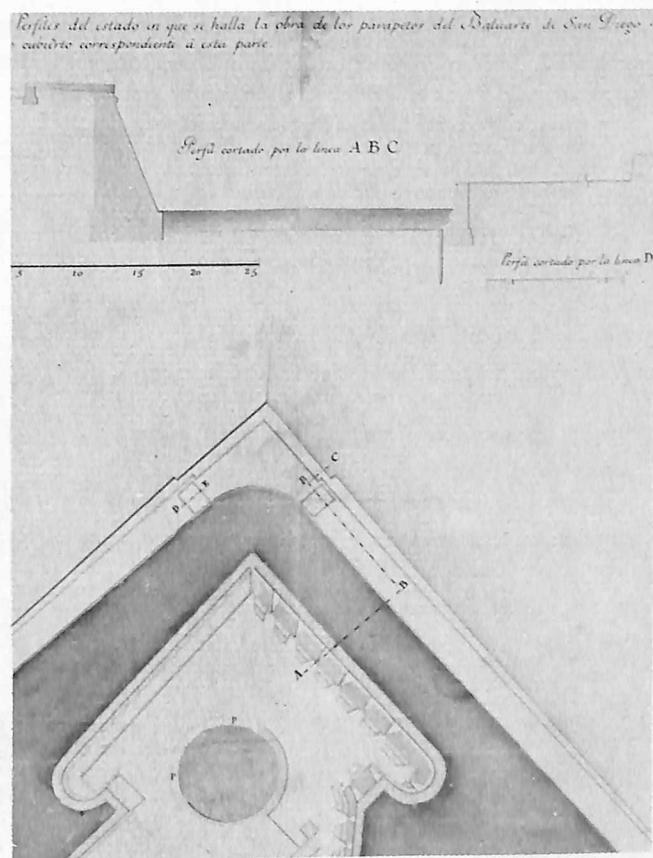


Figure 12. Plan of Bastión de San Diego detailing its parapets submitted by Thomas Sanz dated 1778.

the Plaza when the English captured it; it is accompanied by another plan of the new fortifications). *Copia sacada del Archivo de la Cap.^a Gen.^l de Manila en Feb.^o de 1842*. (Copy was taken from the Archives of the Captain General of Manila in February of 1842.) The document largely deals with the changes proposed by Engineer Miguel Antonio Gómez to the military authorities for approval of His Royal Majesty. The passage that is of interest to this study reads as follows:

En el baluarte demarcado con la letra F me parece muy útil se practique un caballero alto con varios subterráneos aprueba de bomba para los fines ya expresados en los señalados con la letra H se pueden practicar dos grandes aljibes o sisternas lo que traera grandes beneficio a la guarnición en la plataforma circular.⁵

⁵ In the bulwark marked with the letter F, it seems to me very useful to execute a high cavalier with various bombproof underground passages for the ends already expressed; in those noted with the letter H, two big water tenders or cisterns can be built which should bring great benefits to the garrison in the circular platform. [Translation mine.]

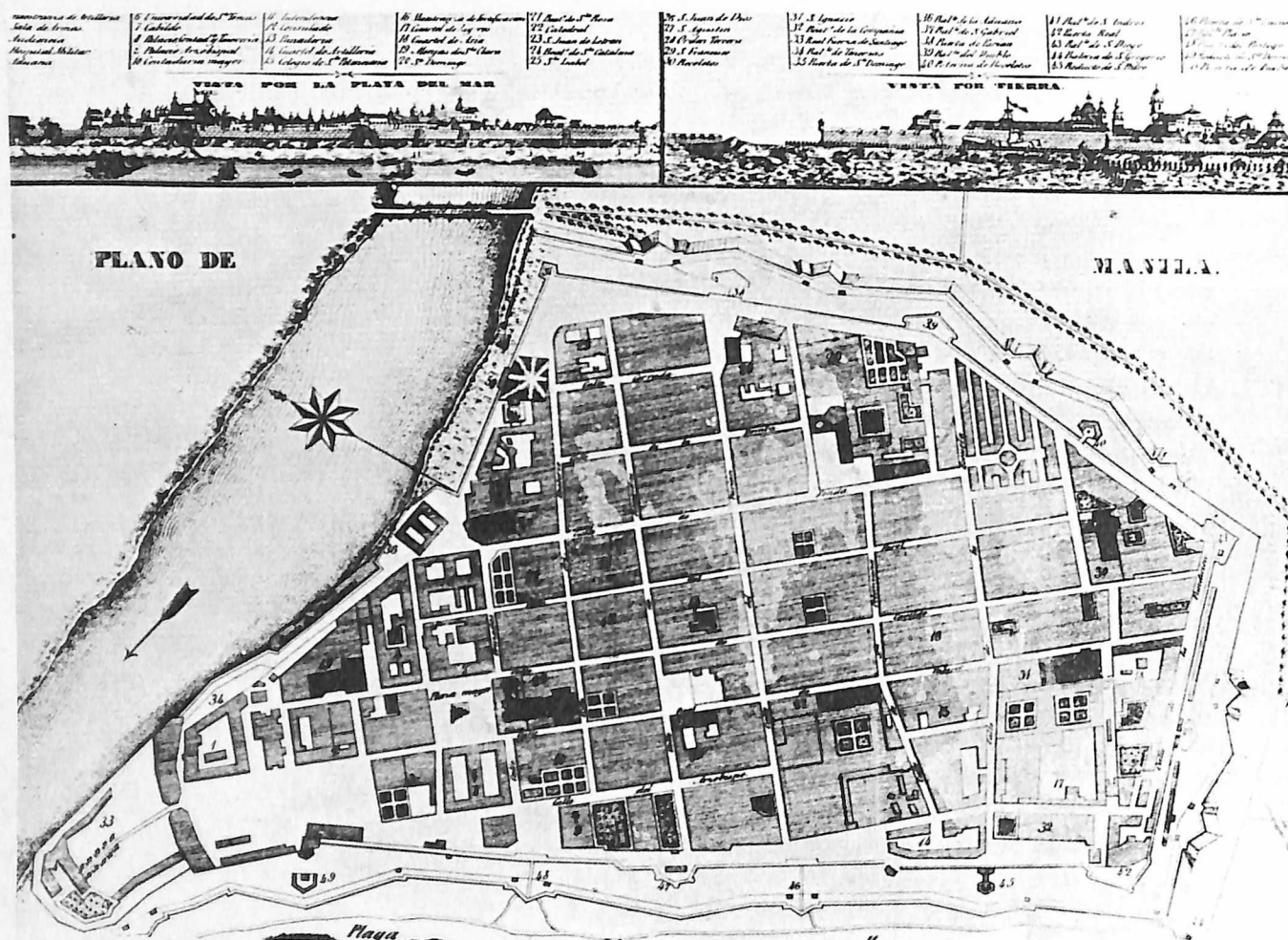


Figure 13. The map of Manila according to Manuel Buzeta and Felipe Bravo, dated 1850. It shows the seashore with its moat and esplanades.

The archaeological excavation in Bastión de San Diego confirms the existence of several underground passages and the three circular structures. The third outer circle, the oldest, presumed to hold the ruins of Sedeño's tower,⁶ may have been the circular platform discussed by Gómez in his *Memoria*. The site designated by the letter "H" may have been the two inner circular structures, which, in the analysis of the National Museum team responsible for the excavation, functioned as cisterns. Unfortunately, the actual site of the letter "H" in the Gómez plan cannot be categorically pinpointed, because the accompanying location plan had been irretrievably lost.

A note at the end of the Gómez manuscript recovered from the Archives of the Governor General reads: "*Se ha omitido poner aquí la explicación*

⁶Because of structural constraints, the actual excavation did not reach the lower level of the third circle.

del plan que se habla en esta memoria y esta cogido en el expediente, por haberse colocado en papel volante en el mismo plano que va suelto." The note, signed by Antonio de Iglesias on February 14, 1842, says that the plan, drafted on loose flysheet, was no longer attached to the job description when the papers were found. (It is significant to note that the National Museum team reached their conclusion—that the circular structure represented a cistern—before the discovery of this microfilmed data.)

The subsequent plans on the fortification of the Walled City of Manila give no information about the cistern. Its importance to any fortification during any siege is paramount. Although Intramuros is surrounded by bodies of water, these were hardly the source of potable water. Individual water wells in private homes could not be counted on to give adequate supply in an emergency. Only Fort Santiago was equipped with its own cistern. This fact is

documented in the Ziscarra map and indicated in the 1771 map of Dionisio O'Kelly as *aljibe arruinado*, or cistern in ruins. We know for a fact that in the early period of American occupation, the new colonizers depended on the well of San Agustín Church for drinking water, as old-time residents had depended on it for water supply during a dry spell. The Americans estimated that the well had a capacity of 65,000 gallons (Lyons 1923:8). The activities assigned to the proximate vicinity of the bastion were such that a great deal of water supply was needed. There were large retinues of soldiers billeted in the *cuarteles*, or garrisons, nearby. It was only logical that engineers would realize the need for a cistern in this area; the old well that had been dug here during Sedeno's and Vera's time would have become obsolete. The round form of the inner bulwark lent itself to the thought of converting this into a cistern by which rainwater could be stored during the wet months.

The plans of 1778 and April 1779 submitted by Thomas Sanz (Figures 11 and 12) confirm O'Kelly's works, providing the additional details of

the parapets on the bastion's topmost elevation and the reconstruction of the *garita*, which had been felled by the British. The plan of 1779 is specially useful, as it gives the exact location of the foundry and the refining plant, both outside the bulwark itself. What appears to be a ramp is indicated at the point where the curtain wall begins. In the 1729 plan of Valdés Tamón, the same space is shown a darker shade, practically sandwiched between the walls of the Fundición and the adjacent building. Thus, we cannot be certain if the shading was meant to indicate a ramp or the shadow of the building beside it. That there was once a ramp here would have only been logical, because it would have made the delivery of artillery to the top of the bastion much easier. Except for the spiral staircase immediately to the left of the main entrance, there was no other way to reach the top of the bastion from the interior. Artillery must have been hauled up through a ramp on the north end, or an improvised one constructed over the eastern stairway. At any rate, the casemates on the ground floor of the bastion built during an earlier period were already ob-

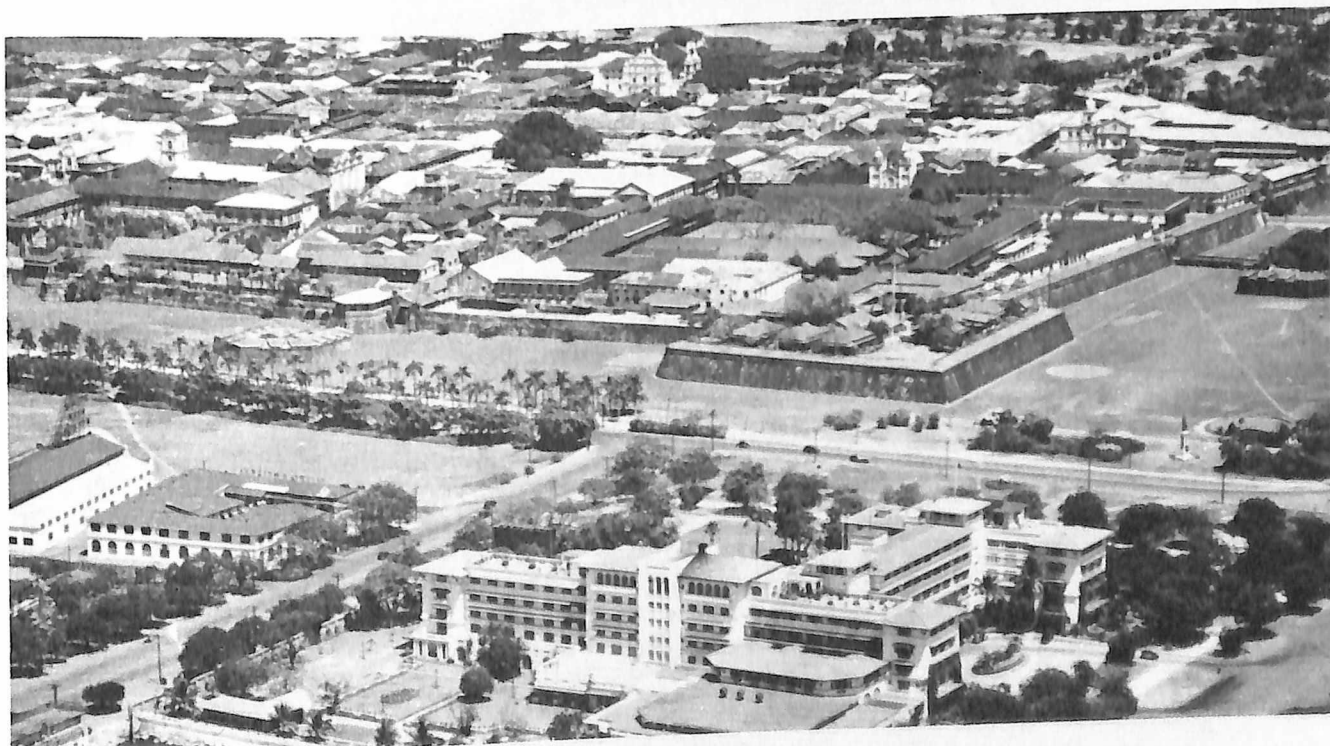


Figure 14. Aerial photograph of prewar Manila showing the foreshore with the Manila Hotel and the Bastión de San Diego occupied by military structures. The headquarters of General Douglas MacArthur are shown squatting on top of Bastión de San José. The churches of San Agustín, Lourdes, the Recoletos, San Francisco, the Venerable Orden Tercera de San Francisco (VOT), and the dome of the San Juan de Dios chapel are visible.

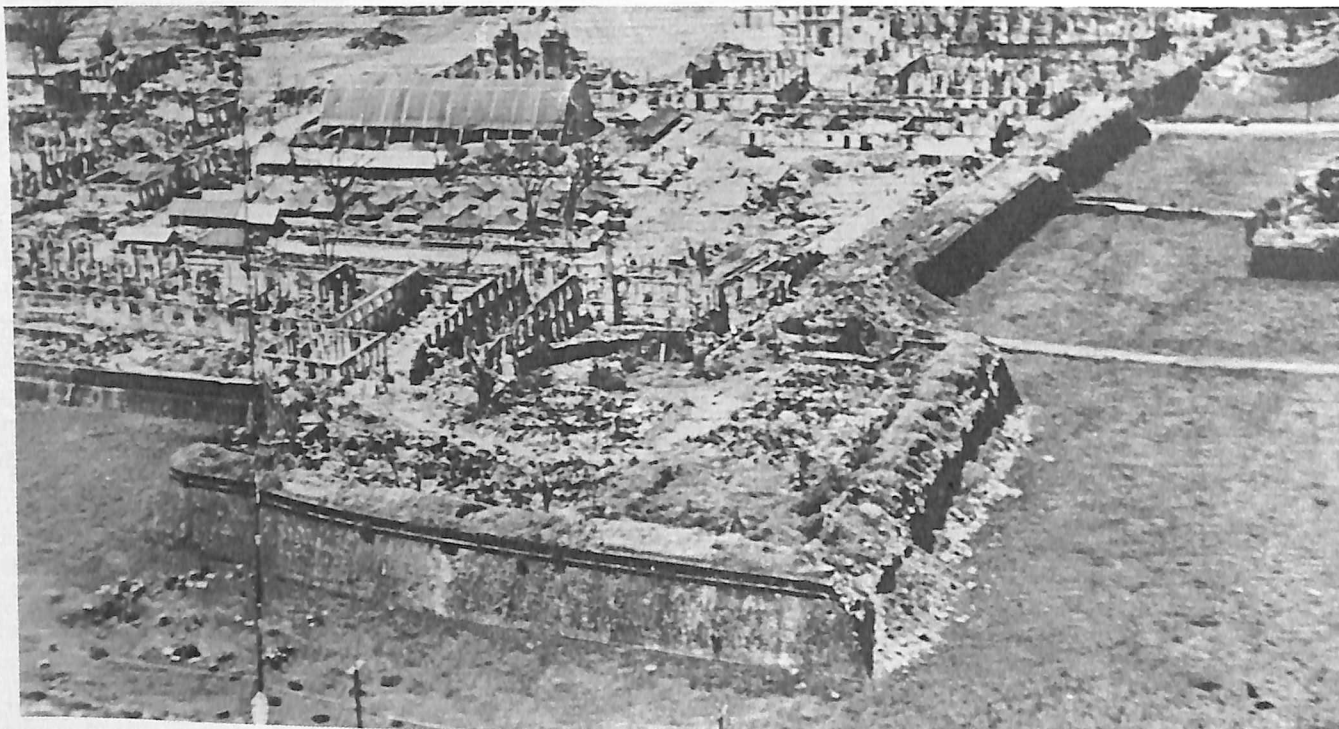


Figure 15. What remained of Bastión de San Diego and the surrounding establishments after the shelling of Manila in 1945. As in the British attack, the southeastern face of the bulwark bore the brunt of the bombardment. From among the ruins, one fails to identify the north garita.

solete and were walled in from the outside by blocks of adobe. The main entrance to the interior of the bulwark must have been on the ground facing Muralla Street, an opening which exists to this day.

SUMMARY. Bastión de San Diego had its beginnings in the old tower of Nuestra Señora de Guía. The tower was renovated and lowered by Governor-General Gómez Pérez Dasmariñas, who connected it to a newly built curtain wall. Diego Fajardo had it enlarged, pushing its configuration out of the enceinte. Manrique de Lara completed its transformation into the shape of the ace of spades, adding a watchtower and a gorge. The structure was once again raised to a height of 25 feet, or 7.5 meters, still almost half the tower's original height during Vera's and Sedeño's time.

The archaeological excavation of the Bastión de San Diego, covering the period from 1979 to December 1982, established the following facts:

- 1 The unexcavated portion below the exposed level of the outer circular structure and the casemates on its street level may have been part of the original Vera-Sedeño tower, with possible improvements introduced during Manrique de Lara's time.
- 2 The construction of the second and first circular structures is not contemporaneous with the older

structure, being differentiated from the third circle by its finish and mode of construction.

- 3 The terra-cotta finish of the masonry of the second and first circles appears to have been applied for waterproofing.

- 4 Brick tiles were introduced in the flooring of the innermost circle so that it may act as filter from underground impurities.

- 5 No trace was left of the circular wall that had supposedly surrounded the patio of Vera's time. The present inner circular structures have floor elevations that fall at 3.65 meters below the present street level. The latter coincides with the flooring of the third outer circle.

Thus, the history of the Bastión de San Diego is brought to our present time. What decisions the restorers of this bulwark, the most enigmatic so far, make are crucial. It is hoped that they will be able to come to terms with the various, and sometimes conflicting, features of the structures. It would be most regrettable if in the reconstruction, present-day restorers overbuilt in order to meet the new functions assigned to the structure. And it would be equally regrettable if the old cistern were reactivated, since it would serve no useful purpose now, and in the end would erode the structure. It should be enough that it exists to illustrate a point of history.

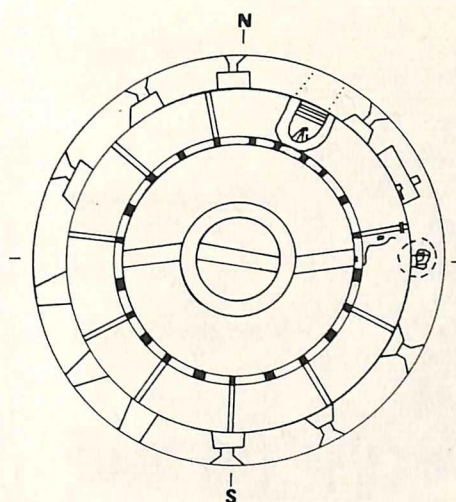


Figure 16. Top view of the stairwell built within the wall of the third circular structure.



Figure 17. In the original structure, this narrow archway led to the patio. When the outer patio was backfilled with some 1.56 meters of sand, part of this doorway was blocked. Marks on the door frame indicate that it was fitted with a door.

Figure 18. A view of the stairwell. Acroposts support some of the loose stones of the structure. Numbers one and two indicate missing stone members of the original winding staircase.

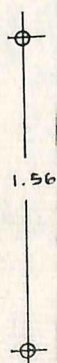




Figure 19. This straight stair was added to the structure at a much later period (see reconstructed documentation of the spiral staircase early and later period, below). It led to a ledge and a low opening that leads to the staircase by the manhole.

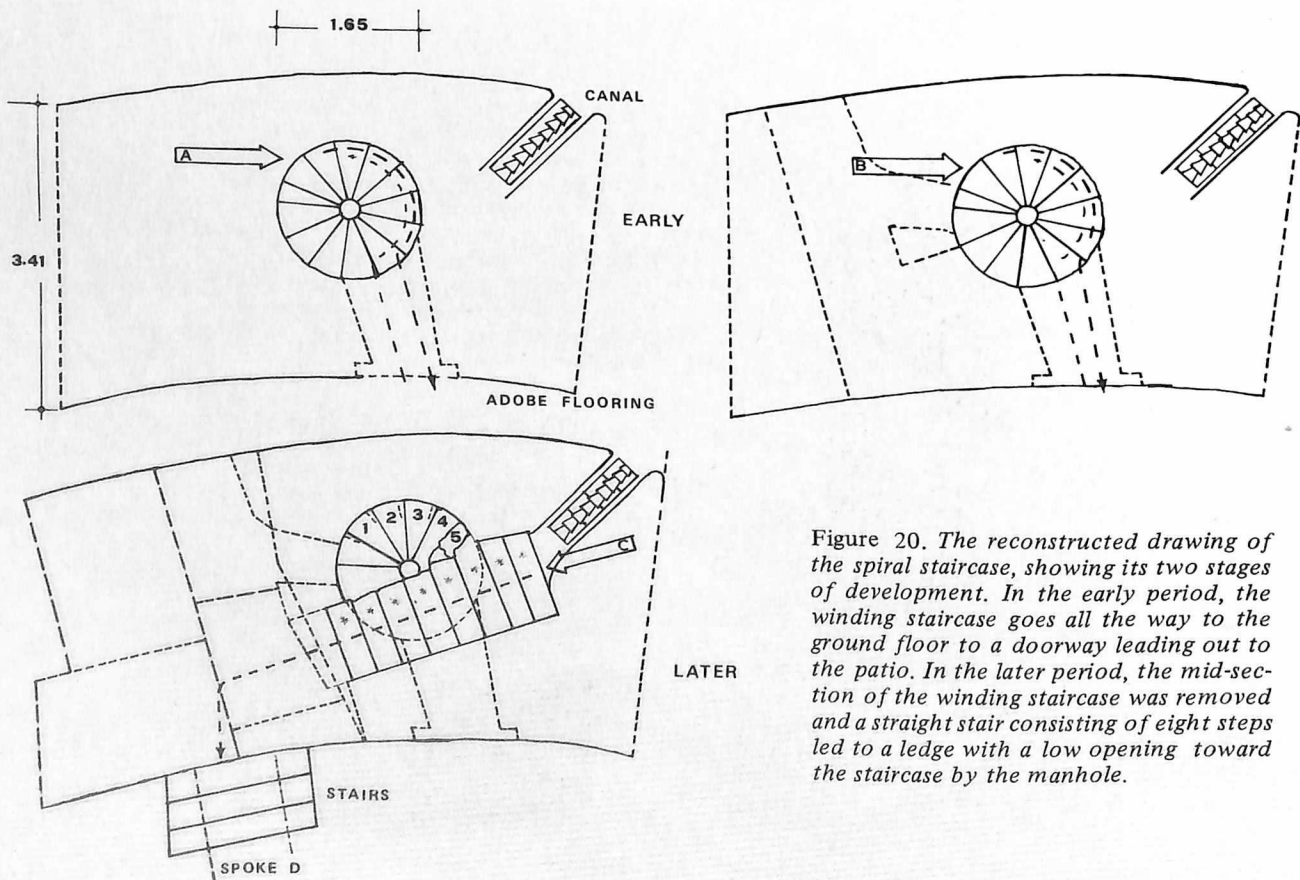


Figure 20. The reconstructed drawing of the spiral staircase, showing its two stages of development. In the early period, the winding staircase goes all the way to the ground floor to a doorway leading out to the patio. In the later period, the mid-section of the winding staircase was removed and a straight stair consisting of eight steps led to a ledge with a low opening toward the staircase by the manhole.

Figure 21. Casemate No. 1 falls within the north quadrant. It is the only casemate that still looks out to the open field, unobstructed by the confining wall of the bulwark.

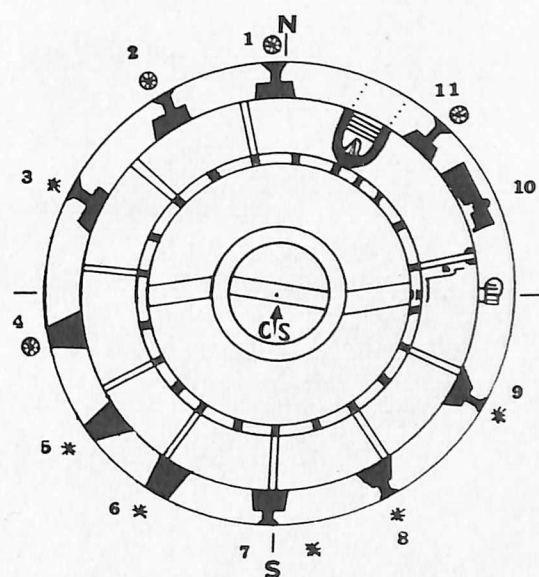
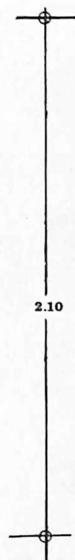
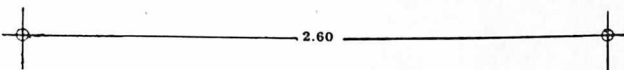


Figure 22. C/S : Center station: S 87".
5E Depth 3.65 m.
Distance 26.50 from
D.P.

- * : Sealed with adobe blocks
- ⊗ : Sealed with adobe blocks with traces of iron bars

D.P. : Basis of all measurements.

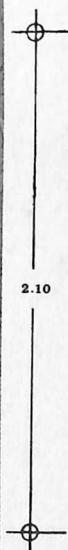
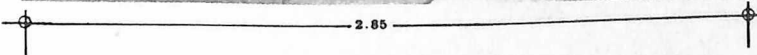


Figure 23. Casemate No. 2 has a deep crack running through its ceiling. It is similar in construction to casemates 1, 3, 7, 8, 9 and 11. They are characterized by a wide opening that narrows down in the interior. All have lookout windows, though most of them are now sealed with adobe. Their floorings are paved and leveled.

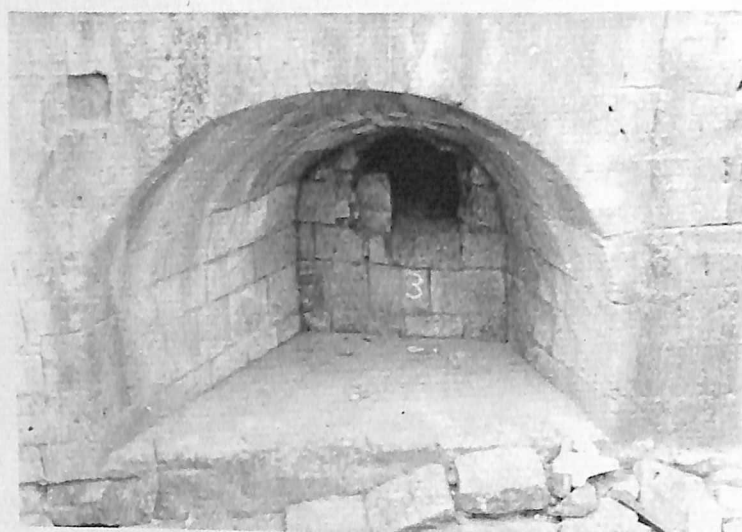
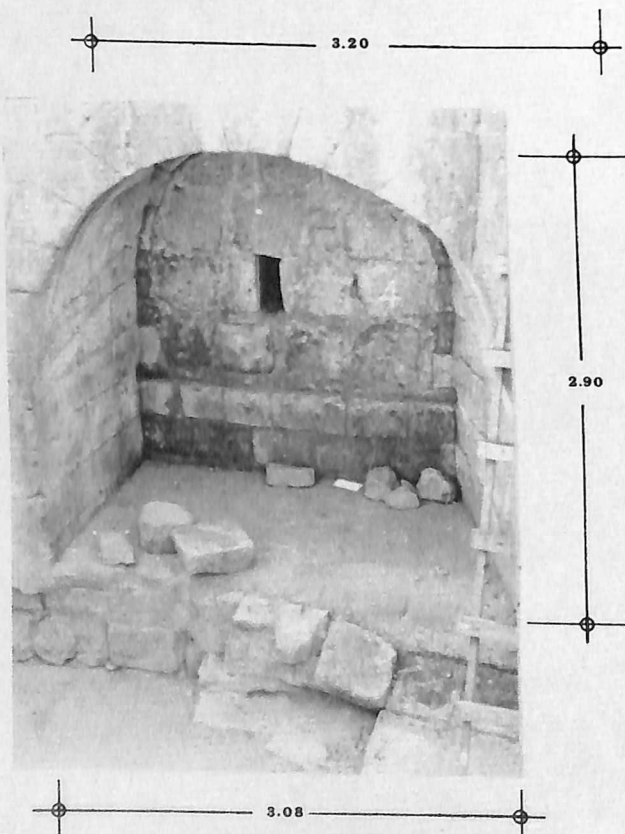
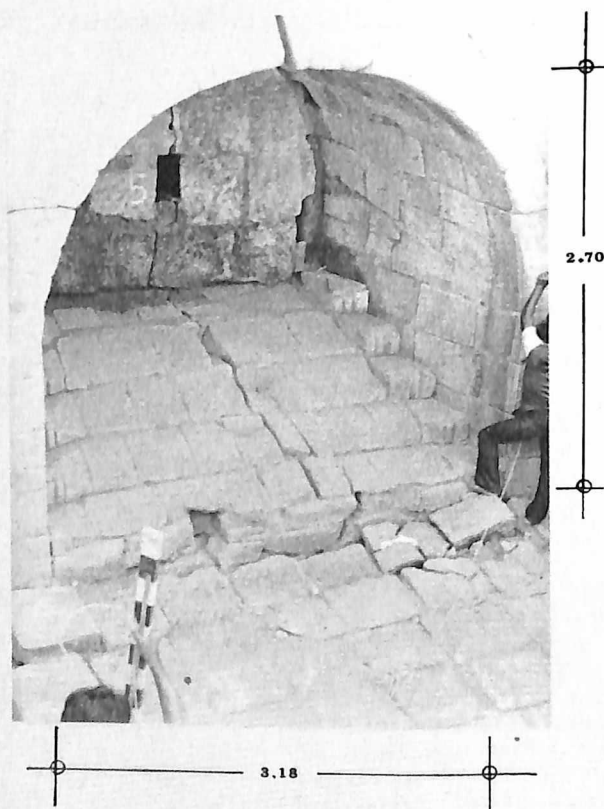


Figure 24. Casemate No. 3.



Figures 25, 26, 27. Casemates Nos. 4, 5 and 6, all located on the southwest quadrant, are simply arched chambers. All have the narrow apertures mentioned in Román's description of the old tower. They have taller arches but narrower width.



Casemate No. 5 has a gradually sloping floor, which could have been used for pushing the cannon up the ramp. It appears to have all the features of the older construction, even the paving outside its chamber.



Casemate No. 6 appears in a "disturbed condition." Its opening has been partly sealed by adobe blocks from flooring till midway of the arch. Soil fills its inner cavity, in an attempt, perhaps, to raise the flooring. On the other hand, the flooring of casemate No. 4 follows the style or manner of the newer casemates.



Figure 28. Casemate No. 7 has been totally obstructed by the spoke built right through its center. Like casemate No. 3, grooves on the outer wall by the entrance may be seen.

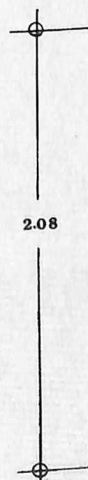
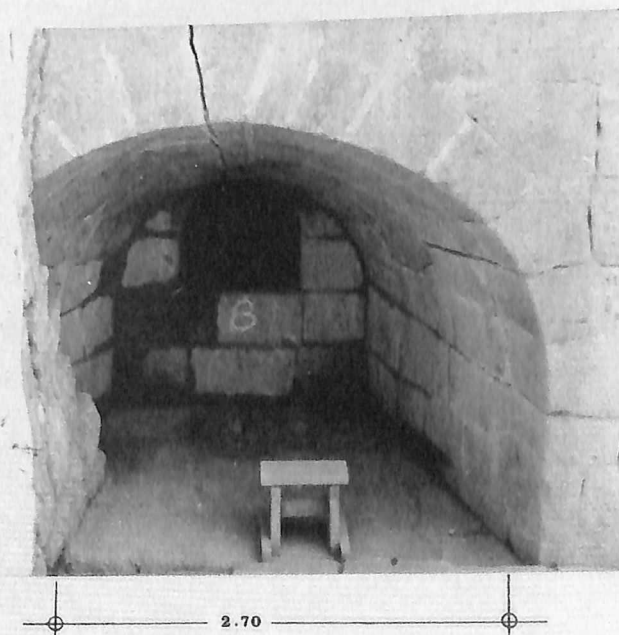


Figure 29. Casemate No. 8 manifests the same deep cleavage that has marred its otherwise perfect condition. The wall of one of the spokes partly encroaches on its opening.



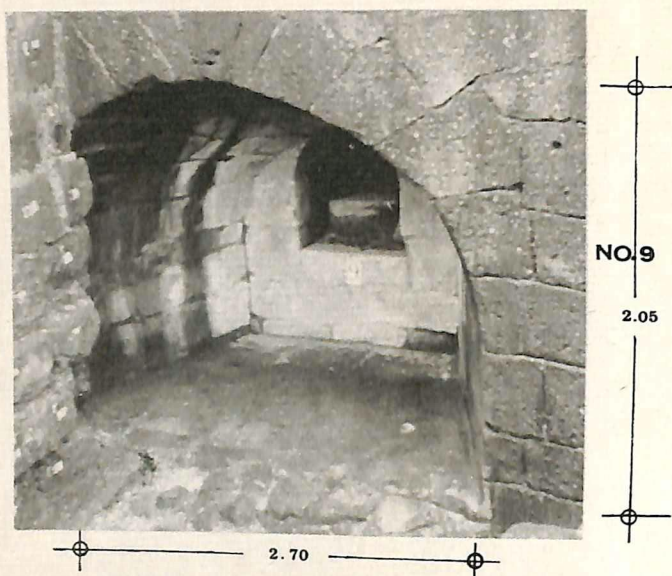


Figure 30. Casemate No. 9.

Figure 31. Casemate No. 10, which appears to belong to the same period as 4, 5 and 6, has a split-level flooring. The outer chamber is on the same level as the ground floor but its inner chamber has a deep trough several meters deep. Its arch is also semi-detached from the wall, revealing a tiny archway leading upward toward the spiral staircase. The entrance of the outer chamber has deep grooves which might have held some kind of door.

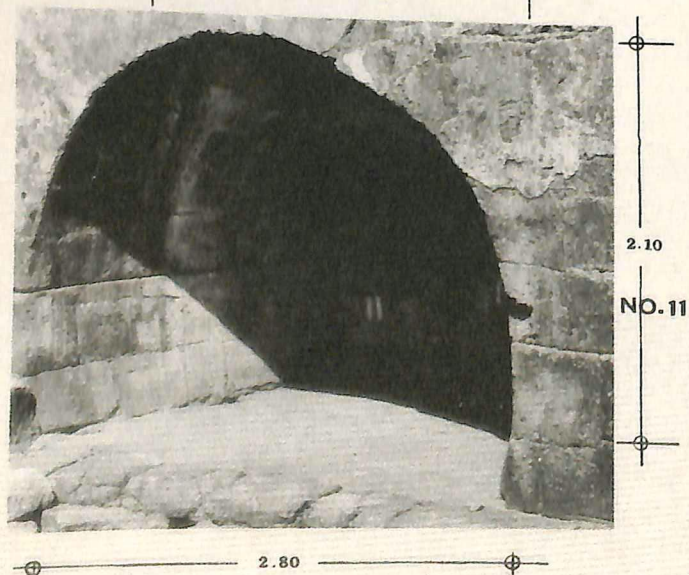
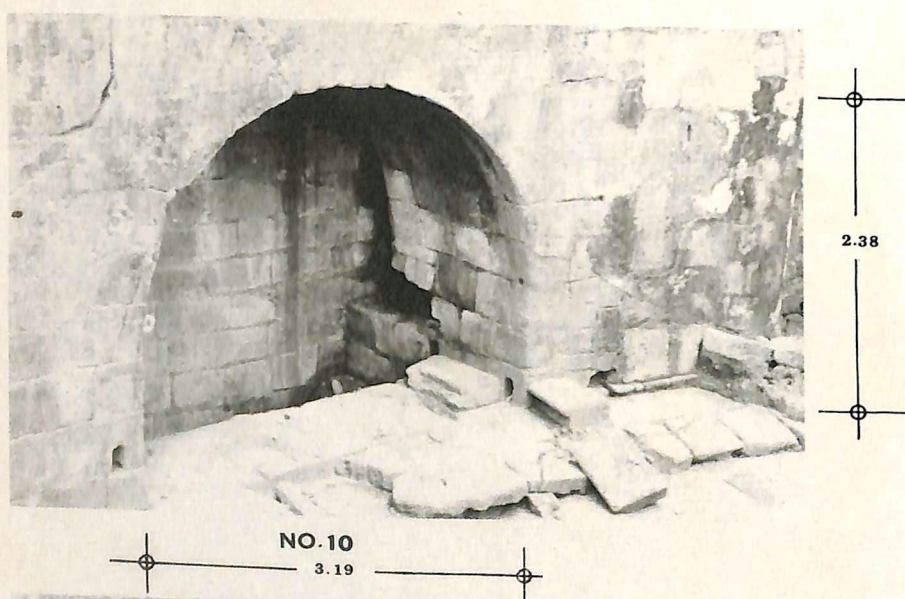


Figure 32. Casemate No. 11.

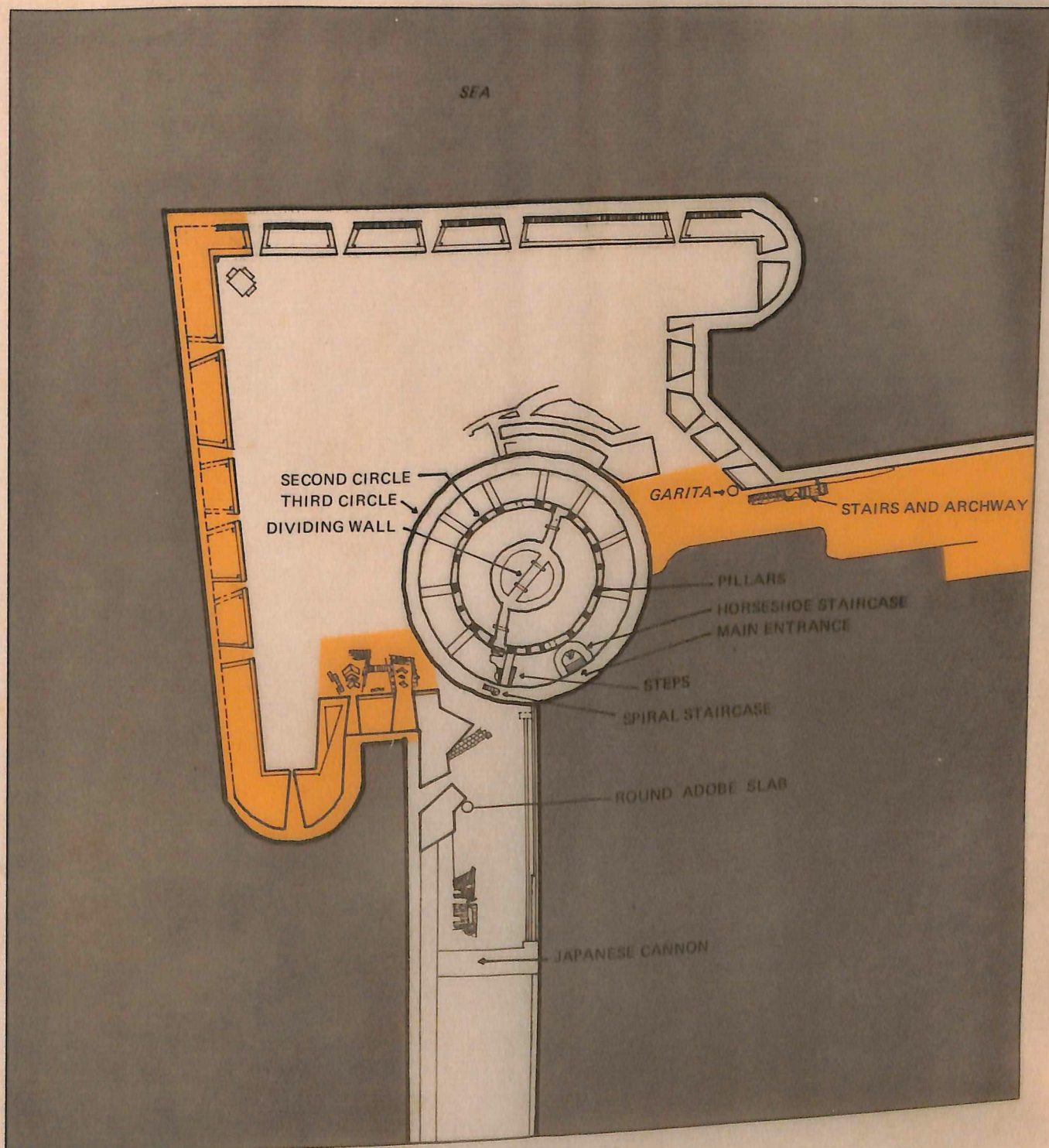


Figure 33. Bastión de San Diego shown at the end of the excavation in 1982. Besides the parapet and the lone garita on the north flank, various other structures appeared as the soil fill was removed: gun emplacements on the east orillion, stairs facing the tip of the bulwark and the three circular structures. Below the terreplein appeared the horseshoe staircase, the spiral staircase, the three sets of stairs sandwiched between the ground of the third and second circle, east quadrant; the subterranean courtyard to the west and the archway and stairs by the curtain wall on the north corner.

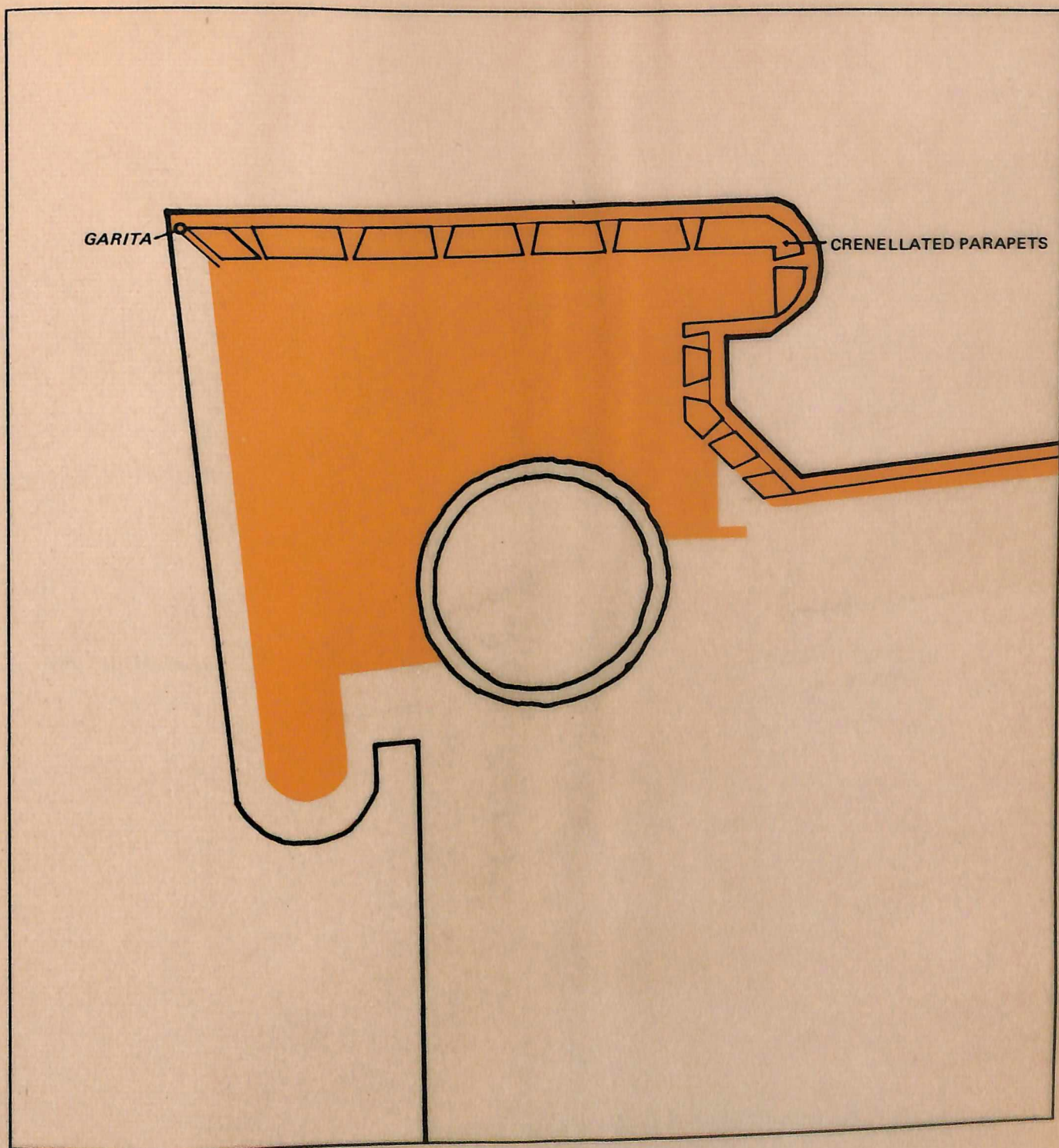


Figure 34. The 1778 plan of Thomas Sanz illustrating the crenellated parapets, a touch of modernity introduced after the British Occupation.

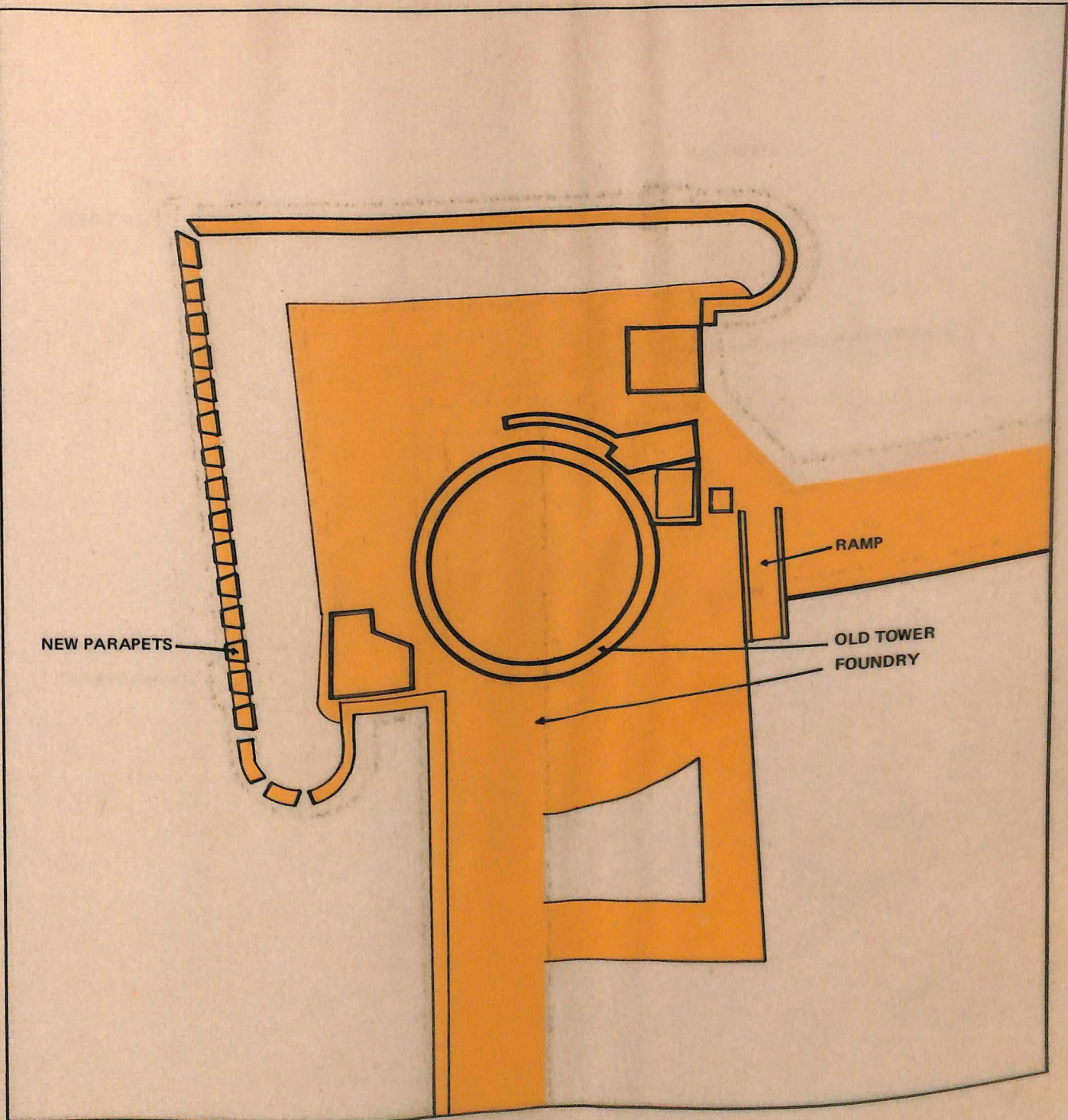


Figure 35. Engineer Dionisio O'Kelly's plan of 1770 confirms the existence of the plazas baxas documented by Valdés Tamón in 1731; the ramp appears for the first time on the north corner and the torreon antiguo is defined by the circular structure. Area below the circle denotes the location of the old foundry.

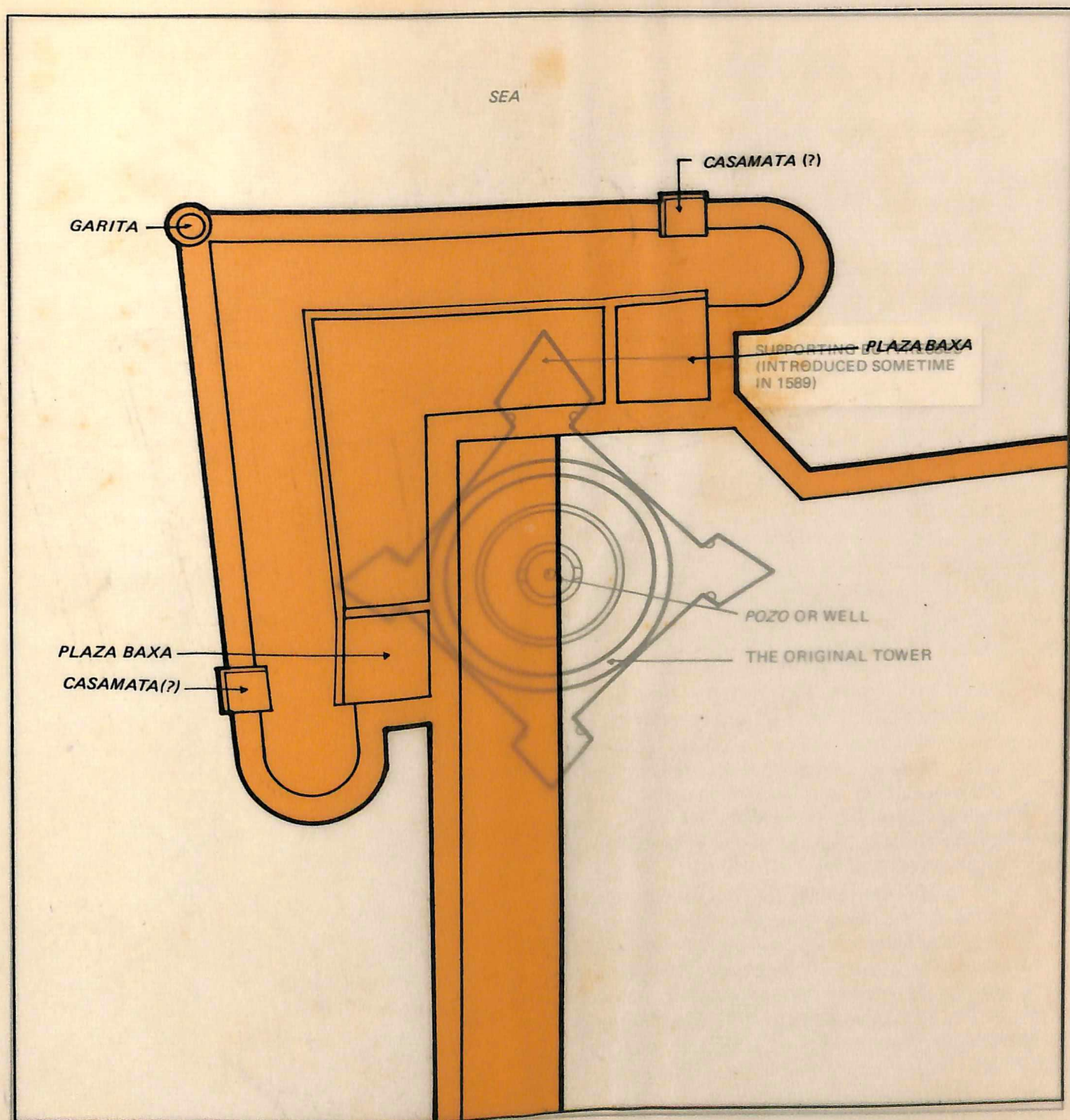


Figure 36. The plan of Valdés Tamón ignores entirely the structure of Fort Nuestra Señora de Guía but documents the plazas baxas, the garita and two other structures on its rampart.

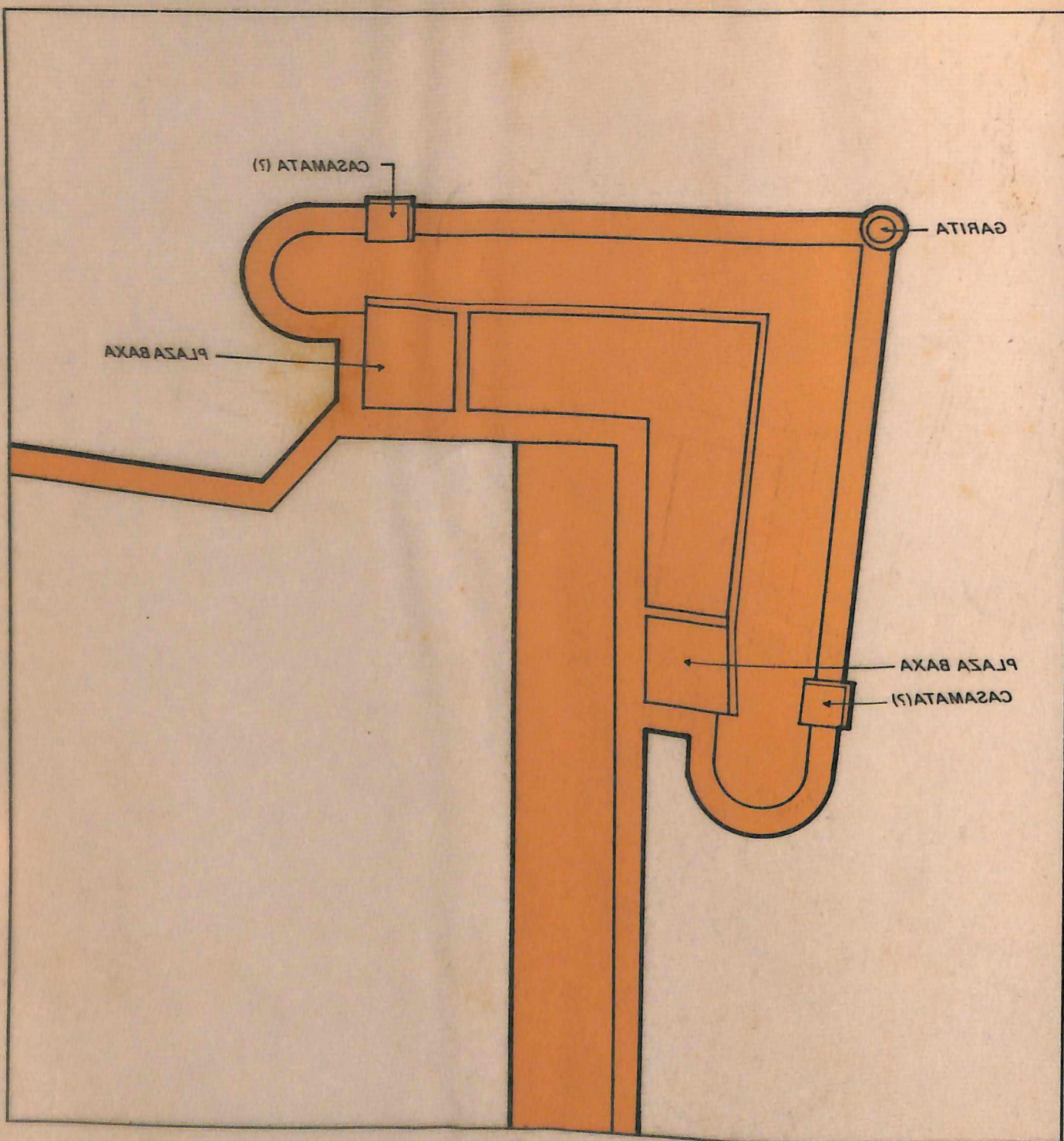


Figure 36. The plan of Valdez Tamón ignores entirely the structure of Fort Nuestra Señora de Guadalupe but documents the plazas baxas, the garita and two other structures on its rampart.

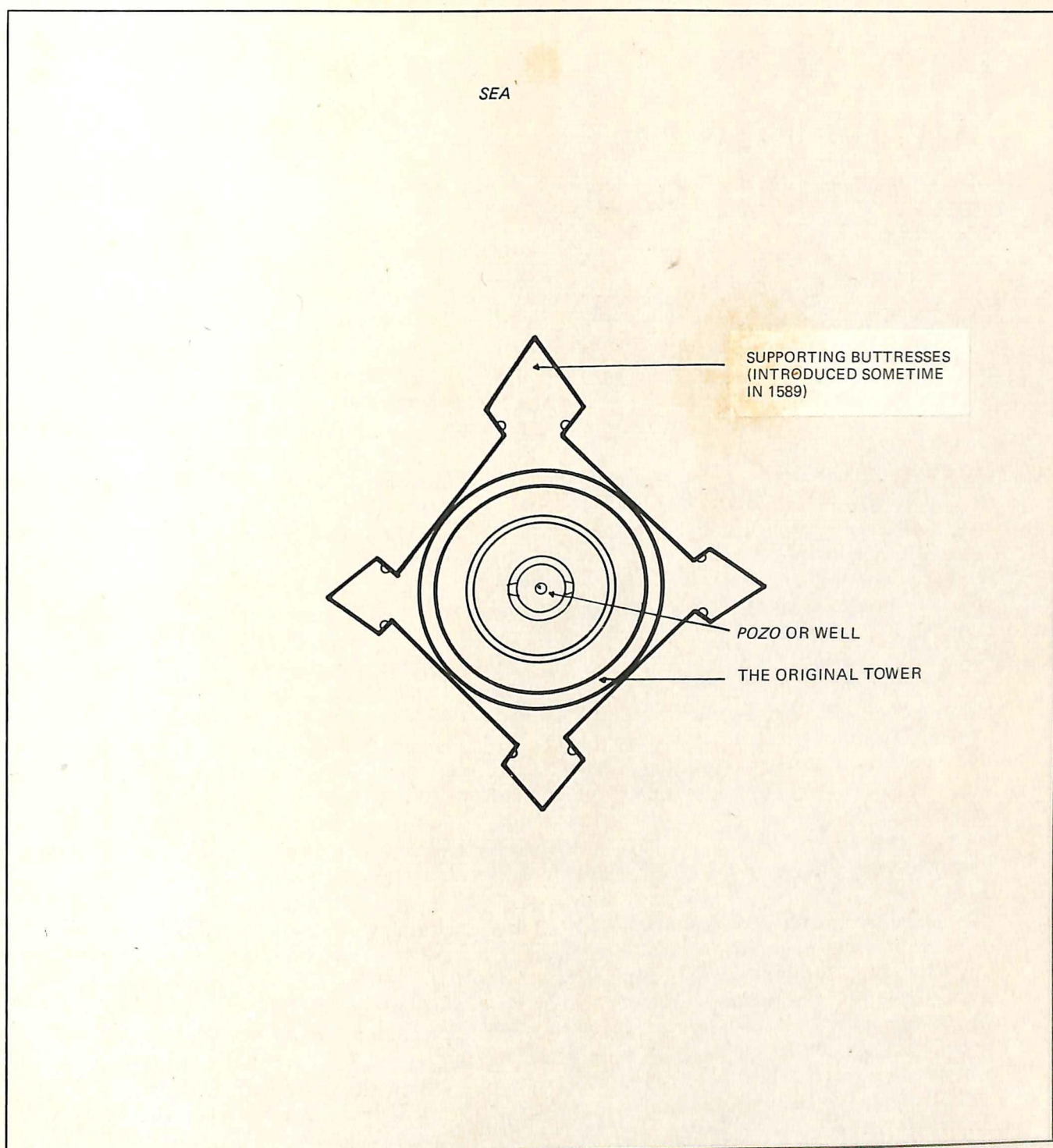


Figure 37. The plan of Nuestra Señora de Guía showing the four supporting buttresses and cavaliers. The two inner cylindrical structures indicated here have no relation whatsoever to the circular structures of the cistern.

Part II

Methodology and Excavation of the Structure

THE NATIONAL MUSEUM normally uses the grid method for mapping and documenting its archaeological sites. The grid is a device by which an area to be dug up is divided into equal compartments in a checkerboard manner with balks separating each segment. The method gives archaeologists a complete longitudinal and transverse view of the hole. In the excavation of the Bastión de San Diego, however, this method proved impractical: the soil was very sandy and therefore erosive; so there was much shifting and movement of position. Stakes and polyethylene cords marking the squares were continuously displaced, making it impossible to get an accurate reading for location or depth.

Because the grid proved impractical for the San Diego excavation, the archaeologists used another method. The "dog-leash" method proved workable; this involved measuring the location of artifacts and their distances from a single control point, and orienting their location toward the datum point. This method allowed greater mobility; workers no longer wove in and out of the grid markings to haul dug-up soil.

Since the excavated structure is circular, it was divided into four quadrants by means of the polyethylene cord. Each end of the cord was attached to the four corners of the inner face of the third circle, so that this partitioning device loomed over the entire structure all through the excavation. The cord was oriented toward the four points of the compass, thus forming the northeast, northwest, southeast and southwest quadrants.

The center where the four points met was called the center station. To ensure its exact location, workers tied a plumb bob on the suspended polyethylene cord so that it fell directly on the center station, represented by a wooden stake driven to the ground. This wooden stake was 2" x 2" in size, 80 centimeters long and pointed on one end. Only 20 centimeters of its length protruded from the ground.

This center station served as the secondary da-

tum point. It was located at approximately S 75°E and was 26.50 meters from the datum point. The first datum point was identified by an iron bar protruding about 30 centimeters from the ground, directly in front of parapet no. 1. It was on this point that horizontal and vertical measurements of the excavation were based: about 4.95 meters above the present street level of the Bastión de San Diego area.

Throughout the excavation, a K and E compass on a tripod remained mounted right above the center station. Another plumb bob was attached to the base of the compass, the plumb bob's tip directed at the center station. From this compass, the bearings of all excavated materials were read and recorded.

To measure the distance of excavated materials, the zero point of a fifty-meter tape was placed on the center station, and the distance read and recorded from the other end. The depth of the excavated materials was measured from the white-painted dot marked on the circular structure. This mark was located on the same level as the datum point. As the excavation deepened, the new level was added to the previous depth reading; repeated readings from the datum point could then be skipped.

To achieve full control over the excavation itself and the recording of the finds, the horizontal distribution of materials was visualized by depth. Several detailed maps of the site using a 1:200 scale on a cross-section paper were drawn; on these were plotted all recovered materials corresponding to their depth. Each material was represented in the working maps by its assigned symbol. For example, working map, labelled sheet no. 1, contains the recordings of all recovered materials found from zero level (datum plane) to one meter below the datum point. This method of data gathering was applied to all working maps until all the artifacts were recorded. The use of symbols helped make the working maps easily intelligible. A protractor was used in plotting the bearings of the specimens and a triangular scale served in plotting their depth.



Figure 38. The compass and plumb bob are shown mounted on the center station located at approximately $S 75^{\circ}E$ on top of the dividing wall.

It became apparent in the course of the diggings that the center station fell directly on top of the central portion of the dividing wall. Automatically, this became the center station. The partition halved the first and the second circle into a northern half and a southern half. The distance of the partition below the datum point was 3.65 meters. A three-inch nail marked the new center station. Black paint distinguished its protruding head.

All excavated specimens removed from the site were immediately placed in plastic bags with their corresponding data written on the bagging slips. Information contained in the slip included the stratigraphic position in the soil; relative position to each other; their association with other artifacts and from other archaeological features. Information about the depth from the datum plane and the distance from the center station was recorded on the plastic bag itself. Specimens of the same orientation and of similar type were packed in the plastic bag.

Collected specimens were brought to the field

station for sorting and washing. Plain water and toothbrushes were used in the cleaning. Cleaned specimens, together with their respective bagging slips, were ranged out in the sun to dry. Once dried, they were repacked with their bagging slips. Extra care was observed in cleaning fragile potsherds. Selected restorable potsherds were cleaned separately, the dirt gently removed from their surface. Immediate remedial treatment was done to avoid the loss of broken parts. Parts were joined with masking tape; once assembled, they were removed to the National Museum laboratory for final restoration.

The accessioning of materials followed immediately; each item was given an accession code and number. For example, Bastión de San Diego's code is NCR-79R5D-1. NCR stands for the National Capital Region; the second unit stands for the year in which the project started; the third "R5D" is the code letters for the site; and the fourth is the chronological order of the materials, represented by numbers, found within the excavated site.

Documentation Symbols and Corresponding Equivalent

Specimens	Symbols
Barbed wire	⌀
Belt (buckle)	⌈
Bone fragments	⌂
Bullet shell (blank)	B
Cannon ball	●
Cannon or <i>lantaka</i> (broken)	⊕
Cast iron	<
Chisel	⌈
Clamp hook	⌋
Clay mold of <i>lantaka</i>	⊙
Double-knit cloth part	Δ
Copper stain encrusted	*
Earthenware shards	⌋
Glass fragments	⌈
Iron slugs	>
Laboratory microslide	⌋
Nail (modern)	⌋
Porcelain shards	⌋
Stoneware shards	⌋
U.S. coin	○

Accession codes were marked on the smooth surface of the object with the use of crow quill pen and india ink. Sometimes, a narrow strip of white enamel paint had to be applied on surfaces that

could not absorb india ink. These markings were normally applied on an inconspicuous part of the object to avoid defacement or erasure.

During the early stages of the excavation, it had been necessary to remove the spiral staircase which provided direct access to the top of the bastion. Viewed from the top, the staircase was shaped like a horseshoe. It provided the only convenient entrance and exit way to workers hauling earthfill from the excavation area. It was thoroughly documented and measured before it was dismantled: the stones numbered according to their original placement. Wooden platforms and gangplanks were built from the excavation area passing through the horseshoe entrance to the portion outside the circular structure where the earthfill was unloaded and piled.

Earthfill was removed with the use of shovels. Every 20 centimeters thick of sandy soil was sifted in a one-millimeter mesh wire. Extreme care was taken to maintain the soil in a horizontal level to allow the systematic collection and recording of archaeological data. A straight vertical soil surface proved impossible to maintain, because the soil easily eroded upon exposure to the sun. However, at the depth of 3.39 meters below the datum plane, a sudden change of the soil texture from loose sand to compact soil was observed. From hereon, ice picks, garden trowels, brushes and whisk brooms replaced the shovels. At times it had been necessary to apply

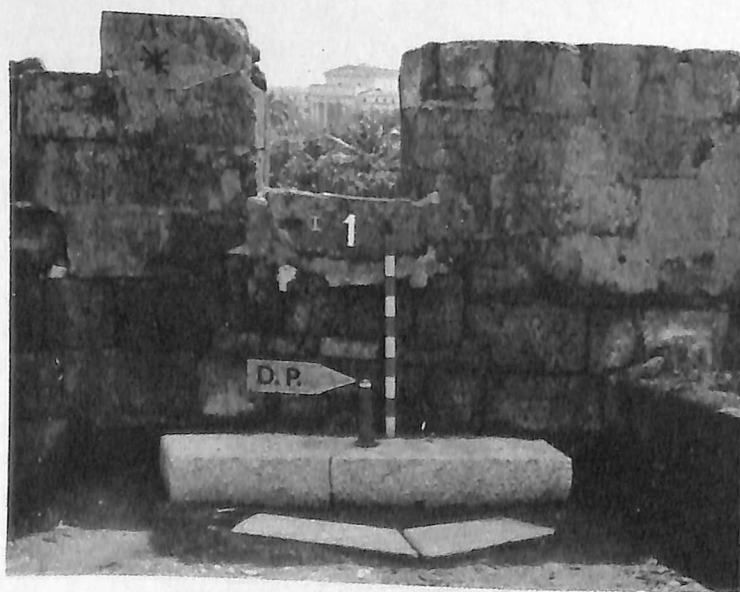
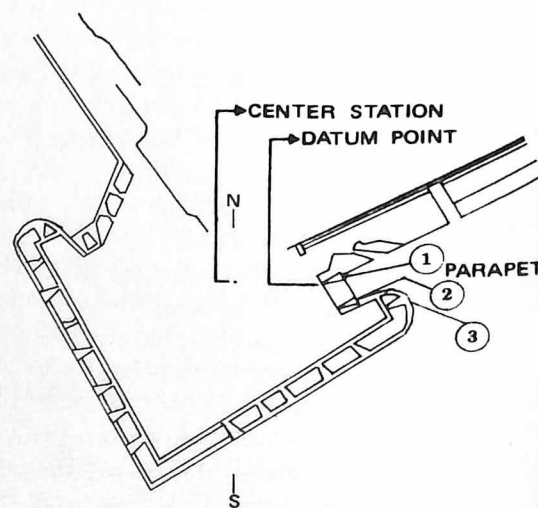


Figure 39. The original datum point is located in front of parapet No. 1 and is about 26.50 meters away from the center station.



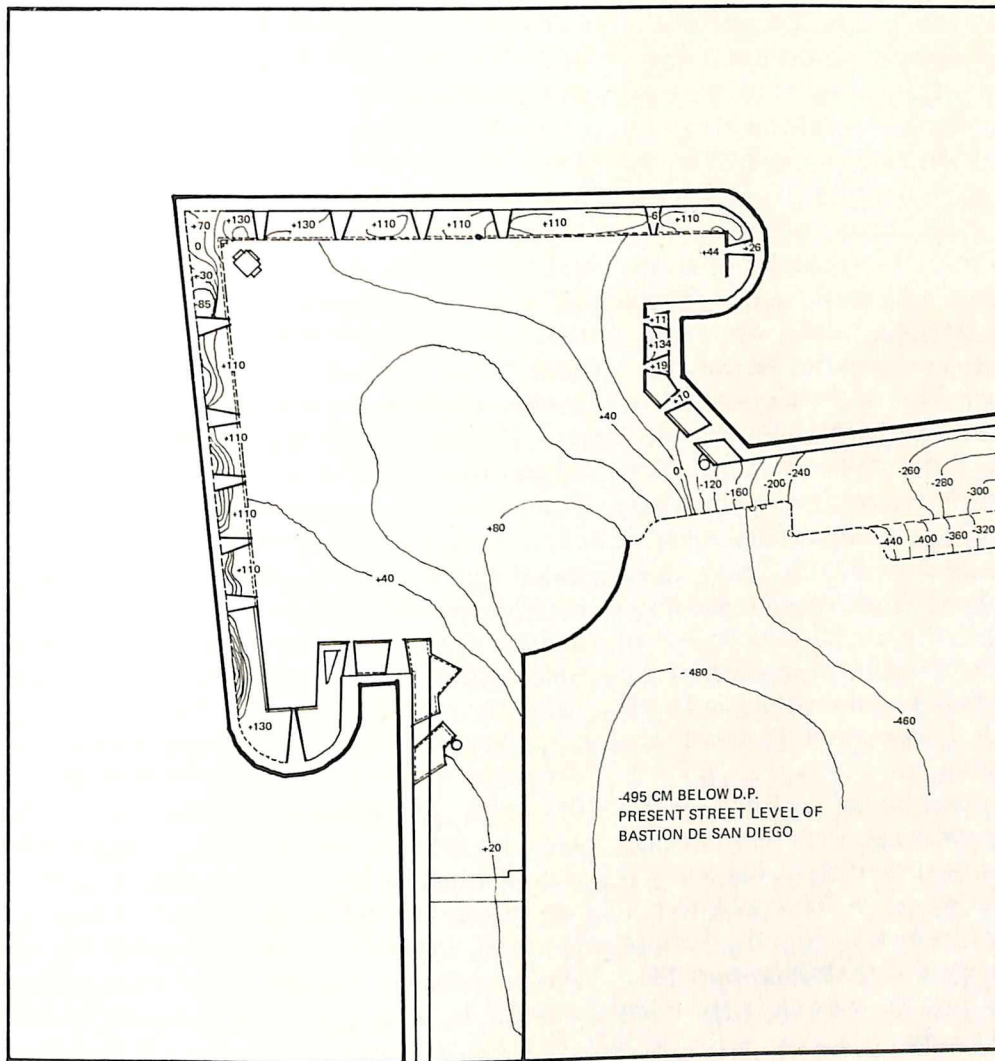


Figure 40. Contour map of Bastión de San Diego before the archaeological excavation of 1979.

a lead prober sounding to determine whether a structure was close at hand. The recording process at this stage included photography, giving full coverage of the structure from all angles.

As the excavation deepened, direct shoveling from the ground to the wheelbarrow became difficult. Instead, soil was loaded into galvanized-iron buckets measuring about 27 centimeters in diameter and 19 centimeters in height. The bucket was tied to a 15-meter-long rope, then attached to a pulley suspended on the roofing support of the platform. The bucket was lowered to the excavation area, filled with soil, then hoisted to the top of the bastion, where it was emptied out on a wheelbarrow. It was an endless process of filling up buckets and emptying barrows, which were wheeled out of the bastion to a deposit area.

Plotting the walls

From the datum point a vertical measurement was taken to measure the elevation of the structure to be plotted. This point was defined by two small nails embedded in the adobe block. The depth of the first station read at 3 meters, was marked with a piece of masking tape. From this station, a series of stations followed from left to right with an interval of one meter until the whole horizontal breadth of the façade was covered. Each station had its own reading. For example:

Station 0	Station 1	Station 2	Station 3
3 m. below d.p.	3 m. b.d.p.	3 m. b.d.p.	3 m. b.d.p.

To ensure accurate reading in every station, a line level was used for each measurement. The line level is a plastic tube which measured 0.5 centimeter

in diameter and 15 meters in length. The end of the plastic tube was placed directly on the point representing the height of the datum point. Once the level of the liquid inside the tube had equalized, the point where the level stopped was marked. After this procedure, the length of the nylon string (size 25) was attached horizontally from station to station. This string was subdivided into 10-centimeter intervals; each interval was marked with masking tape. These markings aided in plotting the actual size and arrangement of the blocks of stones on the wall.

As in the recordings of archaeological finds, working papers were prepared first from cross-section papers. Data were noted down on the working papers drawn with fine horizontal lines, which represented the nylon string, then subdivided into 10-centimeter intervals at a scale of 1:75. Two persons helped plot the wall. The first one began measuring from the datum point to the left, then moved on to the right until the bottom was reached. He read the data aloud so that the helper could project and draw the information on the cross-section paper with the aid of a triangular scale.

To measure, the zero point of the folding meter was placed on the nylon string, and every information obtained in the actual plotting of the wall was transferred on the section paper. When all information had been gathered and plotted on the working papers, all measurements and recordings were thoroughly rechecked before the records were trans-

ferred to tracing paper for finalization. This manner of plotting was used on all three circular structures and the nine spokes.

All data included the lateral distribution of the adobe blocks, the cracks on the parts of the spokes and the chambers found below the third circle. The datum plane was always noted on every cross-section paper to ensure the accurate and exact depth of every excavated structure and materials. Eventually, these data helped determine how one structure related to another and explain the chronological sequence of activities which took place in this site.

Distinctive code symbols were assigned to each of the nine spokes which identified a specific block. The code symbols consisted of letters, numbers, color schemes and geometric figures. All adobe blocks found within the same spoke bore their own assigned code symbols and were numbered so that the number of stones used in each spoke was accurately noted. All of these were marked down on the cross-section paper.

During the documentation period, it had been necessary to decrease the height of each spoke by one meter. This was done to simplify recording time and to guarantee the safety of the staff. All the removed stones had been prerecorded *in situ* and taken to a storage hut. A full documentation of each adobe block had been entered into a logbook for reference and record purposes. Pictures, drawings, notations, condition and sizes of the stones were all recorded.

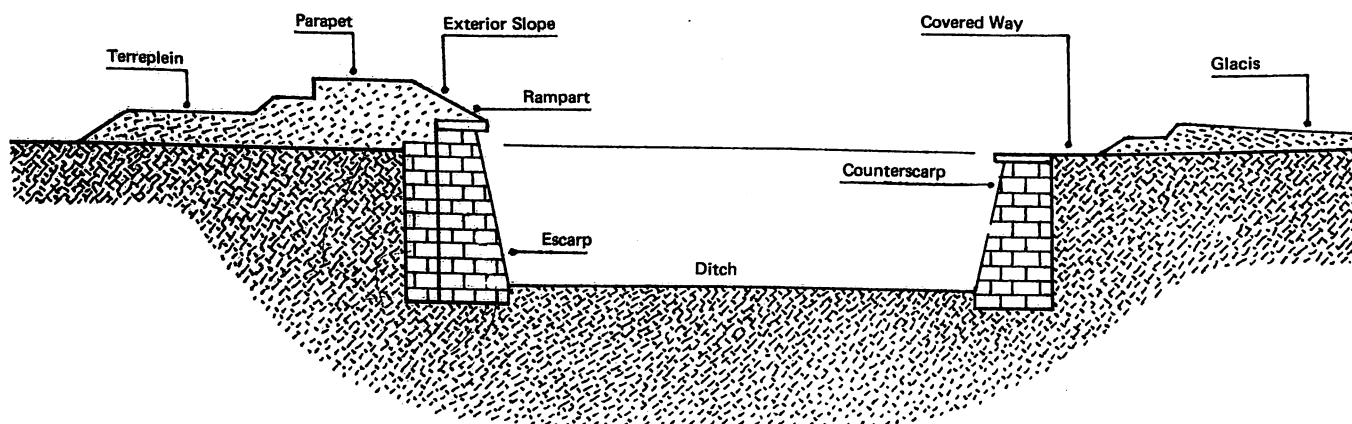


Figure 41. Diagram of a typical cross section of a fort.

Part III

The Excavated Structures

WITHIN THE BULWARK of Bastión de San Diego are three concentric structures, divided by a wall or traverse that runs through the first two circles, partitioning them into a northern and a southern half. The first of these rounded constructions is circumscribed within its center. Its northern half contains two arched windowlike openings, each one a meter wide with a similar but taller archway 1.75 meters wide. This passage leads to the northern half of the second circle. Another archway and three more arched openings are in the southern half, approximating the construction and dimension of those found on the northern divide. The inner and outer side of the first structure are plastered in pink terra cotta.

The configuration of the first circle has an inner diameter of 8 meters with a wall thickness of 1.41 meters. It lies 3.65 meters below the present street level of Muralla Street on the southern section. The top of the structure is some 2.10 meters above the street. It has a total height of 5.75 meters.

The second circle has a diameter of 21 meters with a thickness of 0.90 meter. The top is placed at a distance of 2.50 meters above the street level and has the same floor elevation as the previous circle, giving it a total elevation of 6.15 meters. This time the terra-cotta finish is confined to its interior surface, indicating that water was stored within these first two structures. Found in its inner face and located at 27°E of the center station is a triangular duct, which was built at a higher level—0.60 meter—from the four ducts built into the partition wall, elevated at 4.75 meters above the tiled flooring. At the bottom, to the east and west of the center station lay two iron pipes with a diameter of seven centimeters. Obviously intended as water conduits, they would have been useful during the dry months, for they are laid below the water table. Even now, clear water rises to the height of 25 centimeters within ten minutes after the section has been emptied of water. However, laboratory results obtained by the National Museum technicians from water samples show a high concentration of chloride, indicating

contamination by sewage, other bodies of water or mineral deposits. Though unfit for drinking, water obtained from Bastión de San Diego could still be used for other purposes.

The flooring of both circles is made of brick tiles. The wall which transects both circular structures has a thickness of 1.50 meters and runs off tangent from the eastern point, lying at a more westerly direction on the other end. Like the inner circles, its two sides are coated pink.

The third circle circumscribed by the bulwark appears to have been built at a different period, much earlier than the other two structures. It does not seem to have any direct bearing on the architectural function of the two inner circles. Its adobe walls are not plastered with terra cotta, although the top of its structure bears the same timber-holes that the first and second circles also have. It has a height of 8.55 meters with a diameter of 32 meters and a thickness of three meters. There are 11 chambers found within its structure, evenly distributed into groups of threes among the northwest, southwest and southeast quadrants, and two more on the northeast where the horseshoe staircase, the main entrance into the Bastión de San Diego, is located. The ground space sandwiched between the second and third circular structures is on the same level as the street, putting it at the considerable distance of 3.65 meters above the tiled floorings of the first and second circles.

The surface of the structure is marred by cracks, particularly in chambers two, five, six and eight. The cracks widen near the keystone and extend upwards. The vaulted chambers have been sealed with adobe against the outside, but markings on the stone surface indicate that at one time, the recessed portion opened out to the surrounding marshland, the sea and the interior Plaza. Some had been barred with iron grates for security measure. Their construction suggests that they were originally intended as casemates. We note the sloping floor in some of the chambers, probably devised to push the cannon up its ramp, and the vaulted roof with



Figure 42. The forlorn ruins of the Bastión de San Diego as it looked in September 1979. Its one surviving garita keeps a lonely watch on the north flank.



Figure 43. The interior of the Bastión de San Diego presented a bleak view during the early stages of excavation. The Executive House is on the far right-hand corner of the picture, and to the left the concrete buttresses of the Pamantasan ng Lungsod ng Maynila cut through the Intramuros skyline to hold the earthquake-damaged building.

smaller openings to accommodate the muzzle of either artillery or musket (Figures 25-27).

It is to be observed that chambers four, five and six (Figures 25-27), located within the southwest quadrant, appear to be of cruder construction, whereas the remaining chambers look better finished and have wider openings oriented outwards (Figures 21, 23-24, 28-32). Again, the aforementioned chambers have narrow apertures that recall Román's complaint: mere loopholes through which the artillery protruded. Beyond noting these differences and impressions, one has also to admit that there are no further corroborative data which could establish the age of the chambers.

In view of the existing plans which identify the round structure as the *torreon antiguo arruinado*, old tower in ruins (Dionisio O'Kelly, 1770, Figure 8, and Thomas Sanz, 1779, Figure 11), it has to be taken as fact that the round structure—the third circle—belongs to Vera's and Sedeño's time. But in the light of Dasmariñas' and Manrique de Lara's reports, we have also to bear in mind that only the lower configuration remains as Vera's and Sedeño's handiwork. Dasmariñas reduced its height considerably and Manrique de Lara in his time, once again, raised its height, improving the bulwark of Fajardo that already circumscribed the old tower at that time. Rojas' plan of 1729 may possibly contain the innovations carried out by Manrique de Lara, for no intervening governors-general between 1663 and 1729 worked on San Diego, excepting its routine maintenance. The 1734 plan submitted by Valdés Tamón states clearly that his reconstruction efforts were spent more on Bastión de San Andrés and Puerta Real and its ravelin. For these reasons, I would include the spiral staircase and the subterranean courtyards as part of Manrique de Lara's accomplishments, together with at least one watchtower mentioned in his own report and the *gola*, or posterior opening of the bastion, which to my mind represents the natural connection or outlet to and from the courtyards. He had also built lodging quarters for the soldiers within the encirclement of Sedeño's old tower (Trechuelo 1959:61). The total span of ground space from one wall of the third structure to its opposite side is 31.5 meters, large enough to contain a small garrison.

Thus, on the basis of such data, what we shall consider as the original structure will be limited to the lower portion of the third structure, specifically the casemates. We have to consider that once the retaining walls and cavaliers were constructed on

the outside for the tower's support, the casemates became obsolete as the retaining walls covered them. Dasmariñas, faced with this reality, concentrated his improvements on the top of the structure. The problem of artillery range previously confined to the view of the casemates and the improbable height of the tower could now be solved with the adjustment of its height and the installation of ramparts.

At the height of 4.37 meters, protected by solid ramparts, the Spanish defenders were given an advantage over the enemy. Indications are that Fajardo and Manrique de Lara followed suit, since most of their improvements affected the top of the structure and its exterior. Thus, whatever adaptive uses were assigned to the casemates were no longer in keeping with their original function. Structurally, they supported the upper story. Possibly, they were used for storage, shed or sleeping quarters. There had been an obvious attempt to keep the damp out. Timberholes found on the structure suggest that wood flooring had been laid down. These were found right below the flooring of the casemates, some feet above the buried arches, which in our opinion form the tower's foundation.

These underground arches were found beneath casemates one and two, the horseshoe stairs and chambers 10 and 11. Only a thin layer of soil had been removed from this portion, leaving the crowns of the arches exposed. Only one of the five chambers was found opened: the rest are sealed with adobe, its vault probably filled with rubble (Figure 45B). The frequent use of arches and rubble combination in many parts of the walls was a standard construction method adopted by the Spaniards that proved economic as well as time-saving. Adobe facings on the walls were obviously employed to prevent erosion that could undermine its foundation.

It would not be inconsistent to think of the underground arches as part of the foundation, even against the fact that some amount of sinking had already occurred, and that the present street level is up by at least a foot and a half. The foundation of the west curtain wall in the Parián has the top segment of its arches above the street level, while the connecting piers and footings lay far below, which may account for the structure's stability despite the boggy location. It would be the same case for Bastión de San Diego, whose original tower was high; we can reasonably expect that footings for its underground arches went deeper than the present water table. Dasmariñas, while building Fort Santiago, wrote to the King that he had provided a

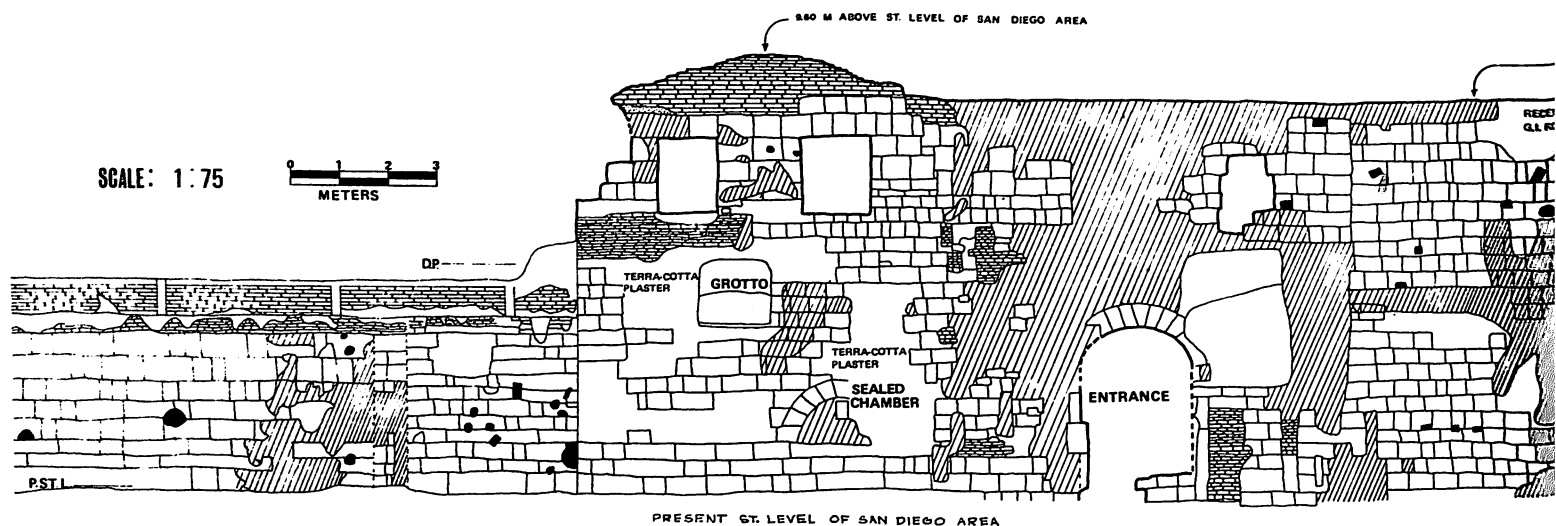


Figure 44. This documentation of Bastión de San Diego shows its actual state at the start of the restoration program in 1979.

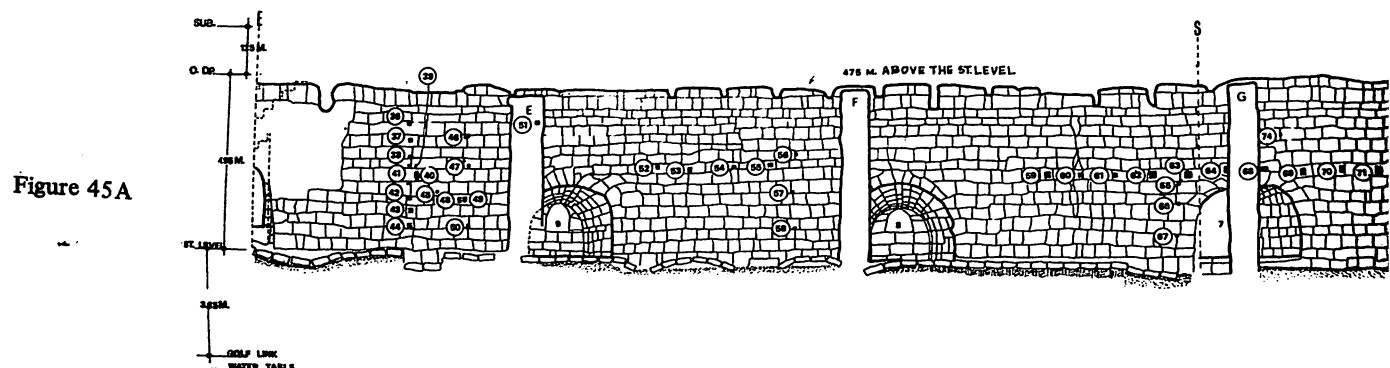


Figure 45A

Figure 45B

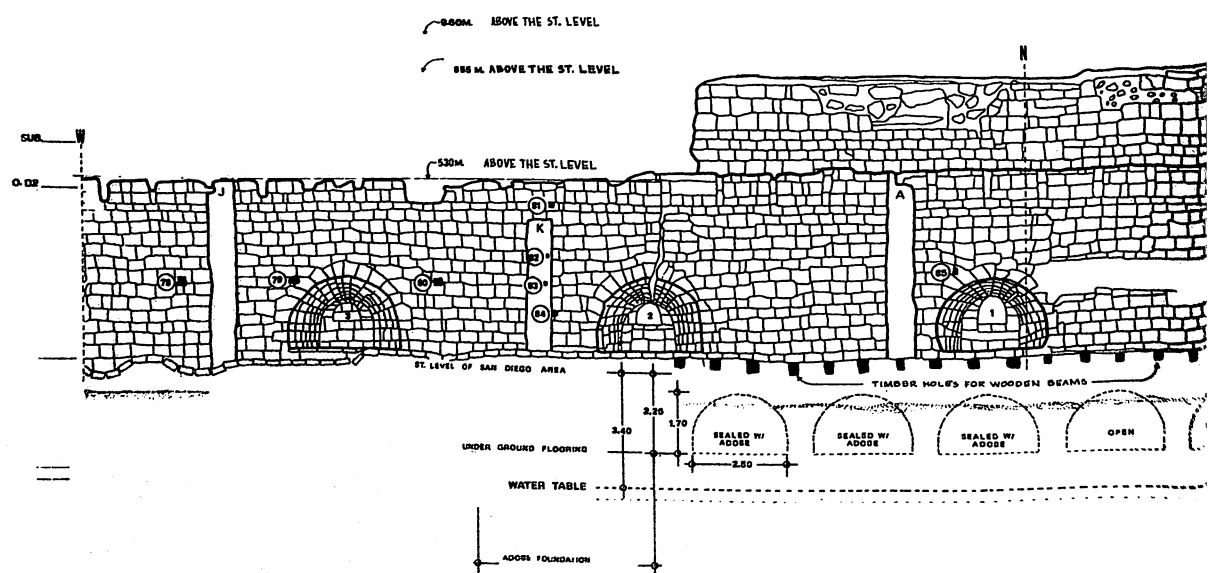
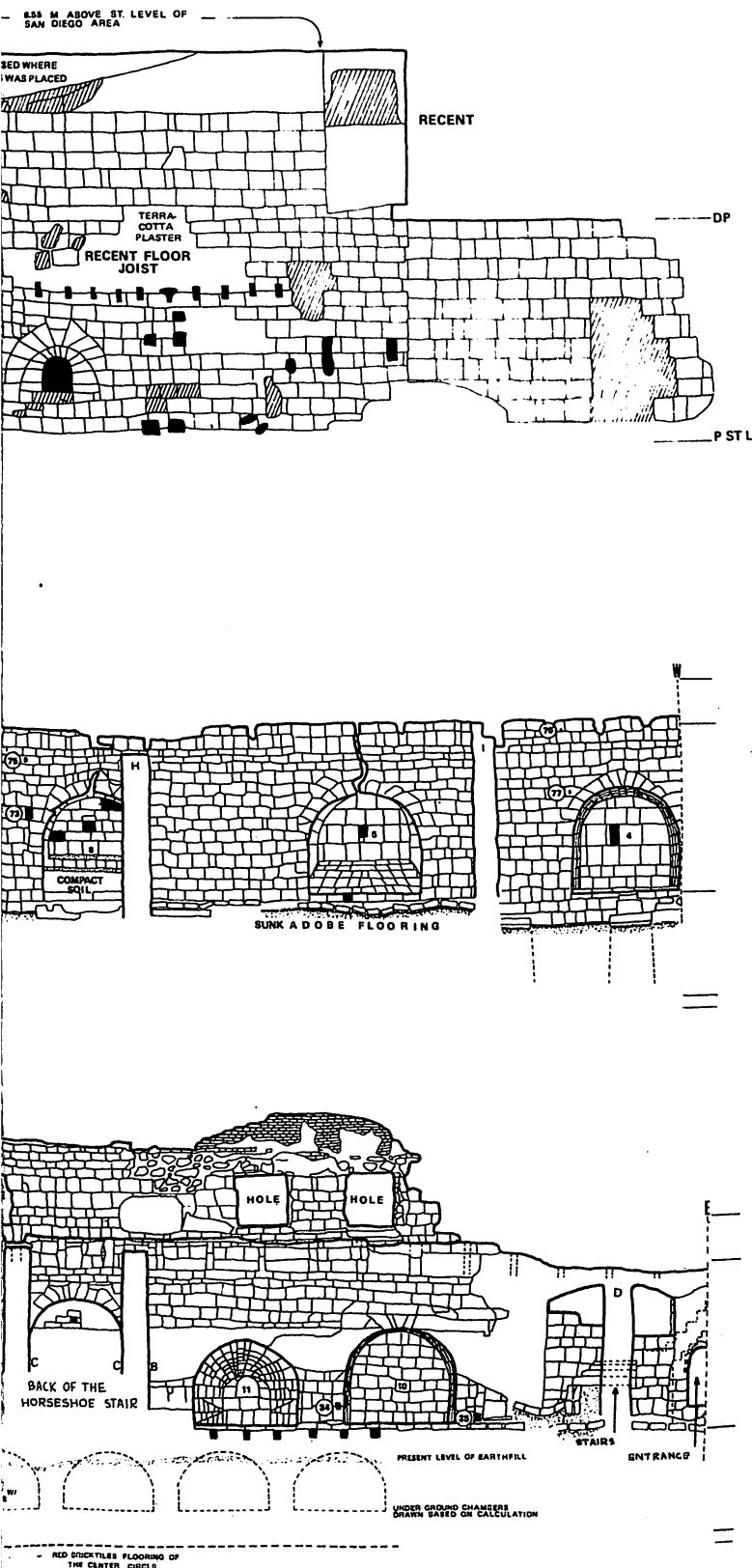


Figure 45, A and B. The documentation of the interior portion of the third circular structure showing the condition of the walls and casemates and the position of the buried chambers below the street level.



foundation of one-and-a-half *estado* deep, a depth equal to its height (BR VIII: 271); the rest of the curtain wall all the way to the fortress of de Guía would have an elevation of two-and-a-half *estados* (BR VIII: 239). The depth of its foundation is not given, but possibly the same depth provided for Fort Santiago was followed; the wall, after all, was not intended to support heavy structures. Dasmariñas, we know, had not touched the lower section of the tower, why then had he chosen to lower it down to the height of two-and-a-half *estados*? Had he correctly computed that the tower's foundation was equal to that in depth, and such would be sufficient to hold the tower steady?

The archaeological excavation shows that the flooring outside the casemate is 3.45 meters above the water table. It is estimated that the underground arches that provide structural support to the tower would be at least 1.75 meters high, the average size of the casemates (Figure 45B). An adobe footing of at least another meter would be necessary to anchor its structure, adding up to almost the exact height of the lowered tower! Dasmariñas had shown himself an astute planner and builder and it is likely that it was in consideration of the foundation—how much weight it could have supported—which influenced his decision to limit the tower's height to 4.37 meters. The lessened height allowed the structure to settle evenly.

Manrique de Lara's decision to raise San Diego some more does not conflict with the wisdom of Dasmariñas' earlier action, since by 1644 San Diego had become a full-fledged bulwark. Additional foundation and additional breadth have been added to its configuration. One is, therefore, speaking of a more solid structure, the circular tower embedded within the bulwark. Of necessity, the additional improvements to the old structure were concentrated on the outer side of the rounded tower. For one, the shape of the bastion determined its outward thrust. The thick walls of the old *torreon* offered a ready-made wall for the earthfill necessary to form the interior of the bulwark.

ENTRANCE TO THE BULWARK, now, is through the opening leading directly up the horseshoe-shaped staircase, which in the beginning of the structure's history may not have been there at all, nor existed in the form seen today. There must have been another staircase which provided access to the top of the bulwark other than the spiral staircase on the east



Figure 46. The two cylindrical structures in the early phase of the excavation. Some five meters deep of earthfill have already been removed.

quadrant, far too narrow and constricted a structure to be practical in times of attack. In this respect, it might be worthwhile to consider that underneath the foundation of the present entrance exist an older foundation and flooring. How these relate to what might have existed here before, one cannot really say. We note the obvious difference in the style of the straight stair in the main entrance now, and that of the winding staircase mounted on its landing. In appearance and construction, these stairs approximate that of the spiral staircase in the east wall of the third circle. Did the original entrance also have a winding staircase like that on the east wall? Had its lower section been dismantled to install the straight stair more suitable for the bustle of activities of a bastion?

Where other access points were located may only be guessed at. Only Rojas' map of 1729 gives some indication of where this might have been: alongside the eastern posterior of the bastion and the east curtain wall. I suggest that at the time when the opening was introduced, it simply provided ac-

cess into the inner patio (see Figure 53). In the map by Ignacio Muñoz (Figure 2), the rampart of Bastión de San Andrés appears to provide access to all the bastions by means of the connecting curtain wall. Fifty years later, we see in the *planos* submitted by O'Kelly and Sanz (Figures 8 and 11) the appearance of what may have been a ramp on its northern flank. Could there have been a similar structure here in earlier periods? The existence of the spiral stairway, the main entrance and ramp with the wider stairway by the east wall would have made a logical approach to the structure. One entered the interior patio through the archway. From the patio, one could proceed to the terreplein and parapets by mounting the spiral stairway. There were three possible ways to leave the bulwark. One could return to the patio via the spiral stairway; or use the steps by the east wall that led to the foundry; or use the ramp that led directly to the street. However, the steps along the east wall and the ramp parallel to it on the north side are not "archaeological realities." They remain historical data but

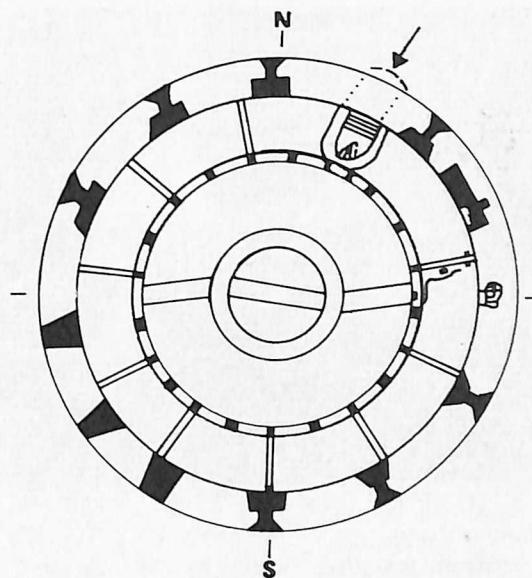


Figure 47. Marks on the door frame of the Bastión de San Diego indicate that one time it may have been barred with a swing-out metal or wooden door.



Figure 48. The main entrance of the Bastión de San Diego. On the wall of the stairwell, vestiges of the dismantled steps are visible on the stones.



Figure 49. Top view of the horseshoe-shaped stairwell. On the landing are the remaining steps, spread out like a fan. Ridges left on the wall show the spiral ascent of the missing members of the stairs, which lead to the top of the bulwark.

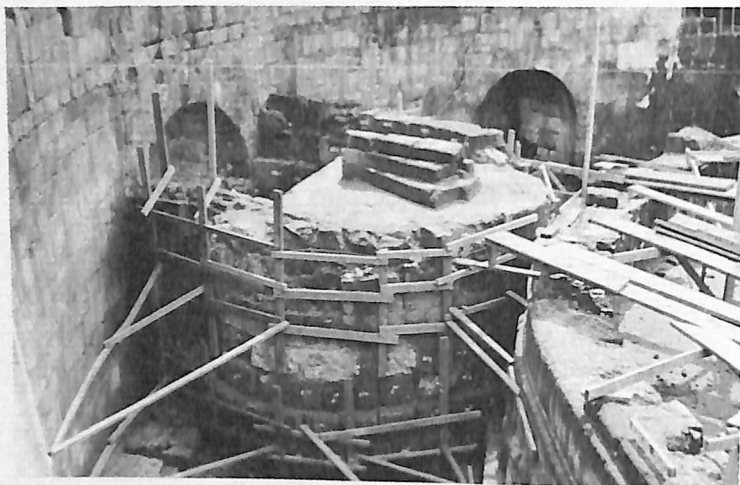


Figure 50. *Back view of the staircase on whose upper landing a spiral staircase was built.*

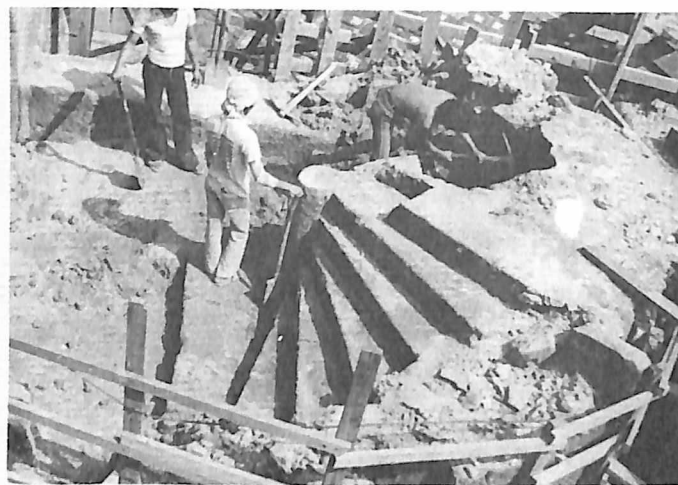


Figure 51. *The soil deposits surrounding the stairwell are being removed. The winding staircase is seemingly held together by a post, accenting its fanlike spread.*

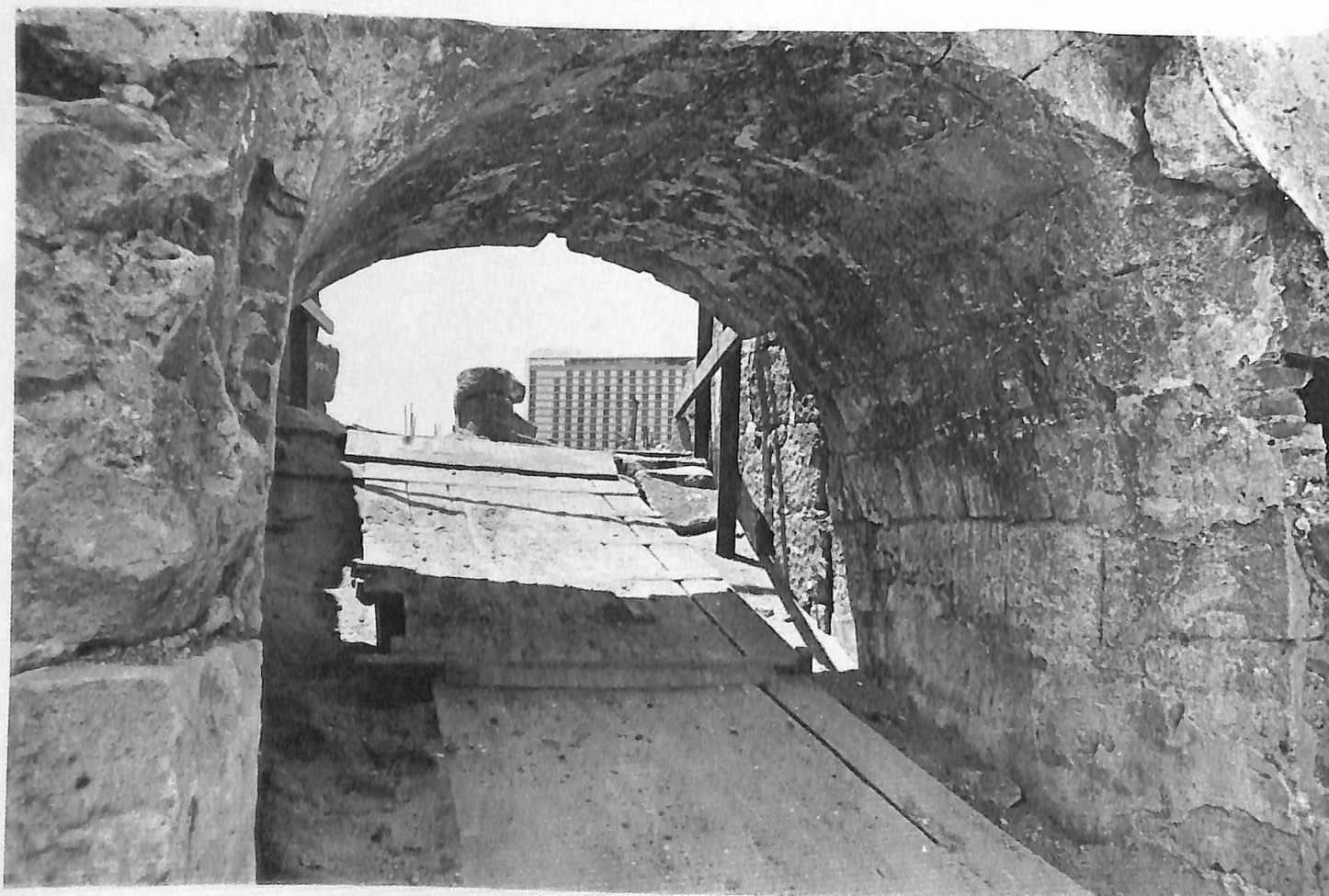


Figure 52. *A makeshift wooden plank covers the stairs to facilitate removal of soil.*

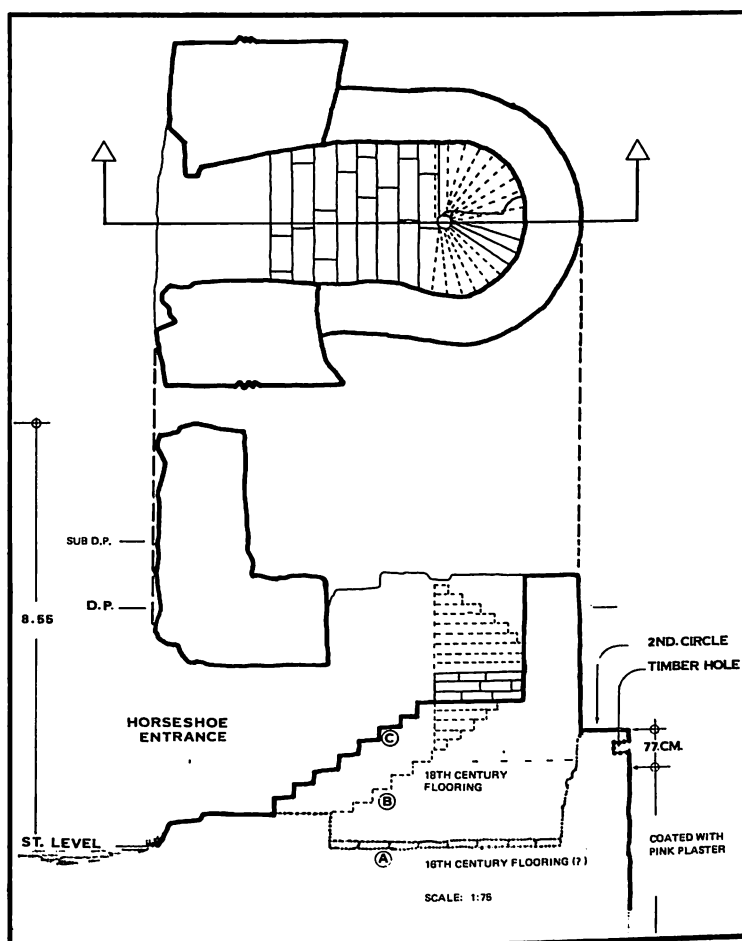


Figure 53. These sketches show the different elevations within and without the structure relative to the staircase. The present street level is almost on the same level as the flooring of an earlier period, possibly that of the 16th century. The present staircase appears to have been built on the older foundation.

unconfirmed by archaeological findings.

The established facts are the spiral stairway and the horseshoe-shaped stairs by the main entrance. But though these service ways complement one another, they were not built at the same time. The function of the spiral stairway has not changed but that of the main entrance had. The stairway it houses led directly to the top of the bulwark and practically blocked off access to the interior courtyard. This situation gives rise to the possibility that the cistern or the inner cylindrical structures were already built at this time, limiting useful ground space between the third and the second circle. Presumably, the eight spokes were built soon after the cistern was built. It was probably found that the wall of the second circle was much too thin to be able to resist the outward push of collected water.

The stairwell functioned like a buttress as well. It becomes logical to suppose that the stairwell was built shortly after the cistern. It is, therefore, of the same age as the eight spokes. The spiral staircase embedded in the third circular structure is much older, probably dating back to Manrique de Lara. I believe that the Rojas plan of 1729 already documents it as well as the stairway on the east wall of the foundry. We lack hard evidence, though, on the basis of the plan alone, that a ramp existed here, but consideration of its importance to any military stronghold equipped with cannons makes it a probable certainty. The same plan already documents the bastions of San Andrés, Dilao, San Gabriel and the Revellín del Parián with ramps.

THE EIGHT SPOKES, excluding "spoke D," built around the ground between the third and the second circles were constructed at a later time than the cistern. Their construction may have been a remedial measure that was resorted to in a hurry. We notice its crude finish in contrast with the smooth surface of the cistern. Later modifications may have proved unnecessary, since the buttresses served their purpose well. Again, the spokes were incorporated into the structure without regard for the casemates' design and former function. In some instances, buttresses cut into the vaults. Four casemates, six and seven in the southern quadrant and numbers eight and nine in the east quadrant, were affected. It is clear that by this time, the casemates had become moribund in so far as the renovation of the bastion went.

It is the opinion of the National Museum team which excavated Bastión de San Diego that "spoke D" was not constructed together with the eight spokes. This opinion will seem tenable when the relationship of each of the various structures within this circle is analyzed. The spokes are evenly distributed among the northwest, southwest and southeast quadrants, but except for "spoke D," none appears within the northeast quadrant. The horseshoe staircase located in this section, of course, already provides adequate support, explaining in part why more buttresses were unnecessary. Then again, the function of the spiral staircase, which was to provide access to the ground floor of the third circle from the top of the bastion and from the ground to the top, would have been negated had a buttress been added here. As shown in the illustration (Figure 59), "spoke D" prevents access to the ground floor. This fact raises the possibility that the ground



Figure 54. The interior wall of the first circle with a diameter of 8 meters. Picture shows the south section with the archway and two of its three windowlike apertures. A supposition has been advanced that a water gate reaching up to the ledge of the aperture seals the archway.

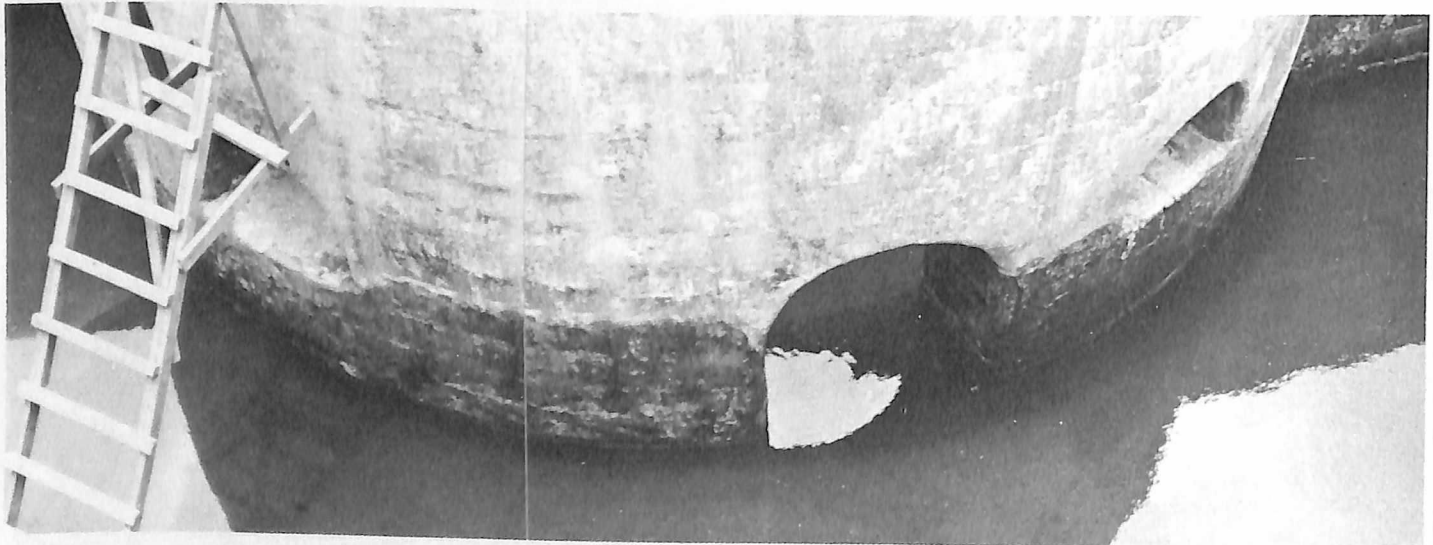
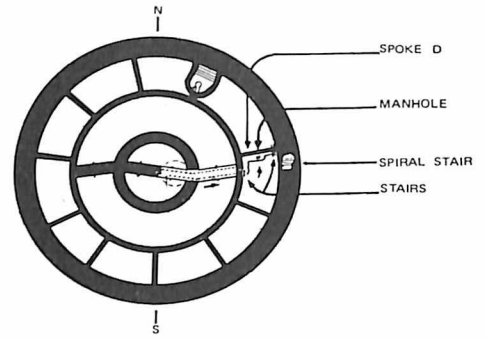


Figure 55. The exterior wall of the first circle showing the water mark indicating how high the water rises.



Figure 56. This water duct is built into the dividing wall. Water from this duct travels to the manhole by "spoke D."

floor of the eastern quadrant was still being used when the eight spokes were built. It is to be noticed that even when the ground floor of this section was elevated with backfill, the hanging steps built led to an opening of the spiral staircase. And whereas O'Kelly's plan of 1770 records the *bóveda* useless—*inutil*—for being airless and tomblike, the structure was obviously retained. Perhaps, budget constraints or time pressure made its retention necessary, or perhaps, the vault and the adjoining courtyard offered a reasonable subterranean refuge and escape during intense enemy attack.

I am inclined to believe that the spiral staircase led to the underground courtyard of the east quadrant, which may have been connected to the *bóveda* and the adjoining courtyard. The present archaeological excavation has exposed a nicely built courtyard with openings leading out of a tunnel-like passage facing south, the other facing north. Both openings appear to have swing-out doors at one time, as evidenced by the holes made on the door frames for such a purpose (Figures 9-10).

The position of the doorways of the courtyard are such that one faces south and flushed to the right, the other faces east. Though the archaeological team has not been able to penetrate this underground level, it appears logical to suppose that this opening leads to the archway excavated beneath the curtain wall leading to Bastión de San José. Alongside the archway is a short flight of steps leading to the bulwark and the curtain wall (see Figures 60 and 61). At the mouth of the passageway facing south is another archway which could have led to the other courtyard that is documented in the *plano* of Valdés Tamón of 1734. The entire area behind the tower's old wall is now backfilled; we are unable, therefore, to prove that the courtyards are interconnected by means of this passageway.

What, then, precipitated the construction of "spoke D"? The reason appears related to the drawing of water from the cistern. However, there are no evidences that can sustain any hypothetical reconstruction of the type of hydraulic mechanism installed in San Diego. But presumably, there had been such a device. It could have been as simple as a hydraulic screw or a type of water wheel-driven chain of buckets (Camp 1963:151/157). The hydraulic screw, also known as the "Archimedean screw" after its inventor, was a cylindrical device with a spiral line cut in its inside wall. By the principle of helical action, water rises from its immersed

end as the cylinder is turned, bringing the liquid to the top end, where it spills out for collection. The manhole, the makeshift staircases and "spoke D" seem part of a larger riddle that, were all its parts present, could tell us how the water was drawn and distributed to a collection point.

The manhole in my opinion, is integral to the cistern (Figure 57). Its method of construction closely approximates that of the cistern; it is well laid and plastered with the same type of terra-cotta finish. Had it been any ordinary drainage outlet, then there would not have been any need to plaster its interior wall. The mouth of the manhole is also slightly tilted to one side and not flatly laid out on the ground. It seems as though they were trying to prevent any build-up of water in its vicinity. It is a suspended construction, or so it seems, anchored only by the packed sand to the wall of "spoke D."

The drain, approximately 2.40 meters long, burrows downward below the ground. The mouth of this arch is sealed. It measures approximately 1.85 meters high, its length about 3.50 meters. A smaller arched opening is on the other end, scarcely measuring 1.52 meters or about five feet. Both chambers have floorings of fine sand. The smaller chamber is partly filled with sand. The chamber is oriented toward the spiral staircase and heads toward the direction of the east orillon. (This level below the ground has not been excavated. Data given here are a result of a cursory inspection made by an intrepid Intramuros Administration technician, Mr. Bernardo Baunillo, who essayed into the manhole to provide us with some information. Thus all the measurements are free estimates.)

If we are to relate these underground vaults to the water distribution system, certain facts must be looked into that would substantiate such a conclusion. How significant is the plastering of the underground chamber to the idea that it was part of the water distribution system? What is the height of the chambers' flooring in relation to the old street level? Was sand purposely put there, possibly for filtration requirements, or was it simply part of the filling material which had caved into the chamber? Analysis of the sand should help solve the questions raised.

There are three makeshift staircases near "spoke D." All three are built on packed sand (Figures 58 and 59). Two of the stairs interface; one, consisting of two tiled steps, leads up to the wall of the cistern; the one opposite is located by the drainage hole and is propped by wooden stilts. The soil un-

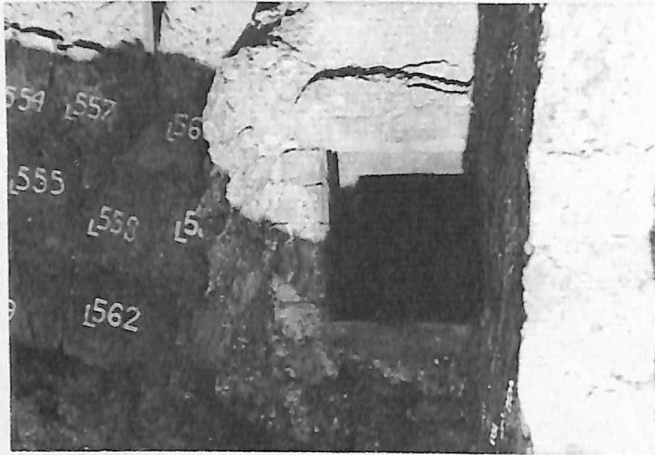


Figure 57. Aperture of the manhole or tunnel located on the northeast portion of the circular structure. It has a vertical entrance, three meters deep, sealed off by a large stone slab. The tunnel runs northeast for only two meters, stopping where a cave-in has occurred. It is assumed that this opening had been pried loose in the last decade because of the presence of contemporary materials like rubber slippers, plastic comb, tin cans and Garand clip.



Figure 58. The two sets of stairs facing each other with the "manhole" between them. On the foreground, extreme right, is the doorway of the spiral staircase. The stone flooring belongs to an older period which is possibly related to the spiral staircase.

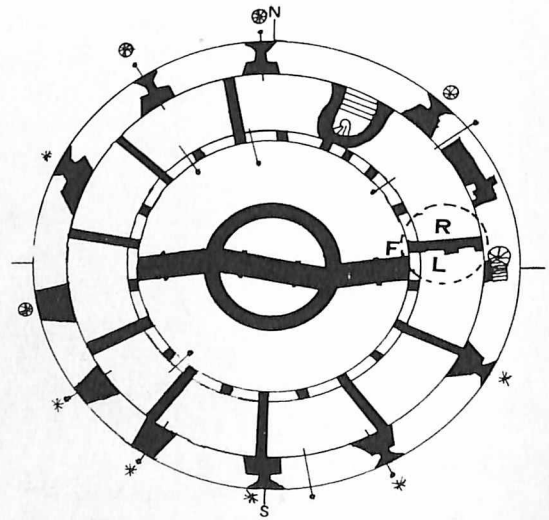
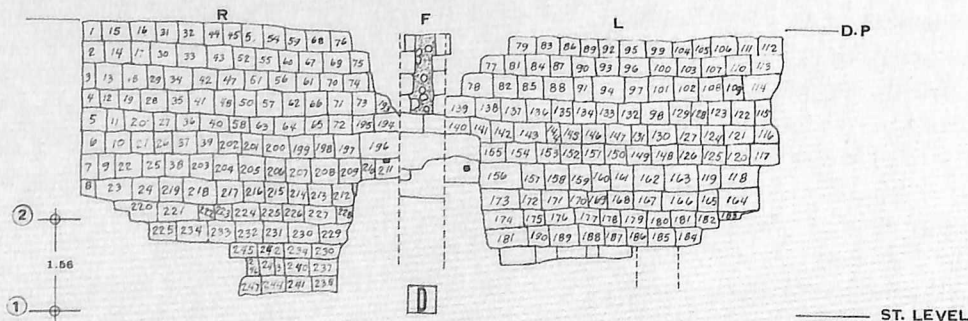


Figure 59. The other side of the stair beyond "spoke D." Accompanying illustration shows the position of the various stones that make up "spoke D."



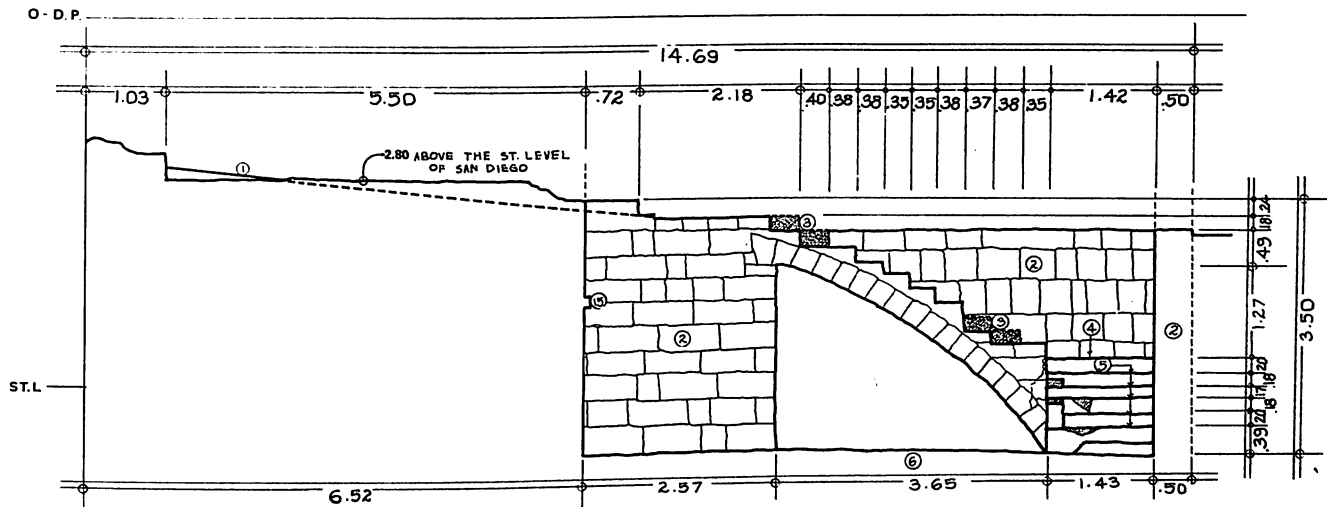


Figure 60. Cross-section of chamber 12.

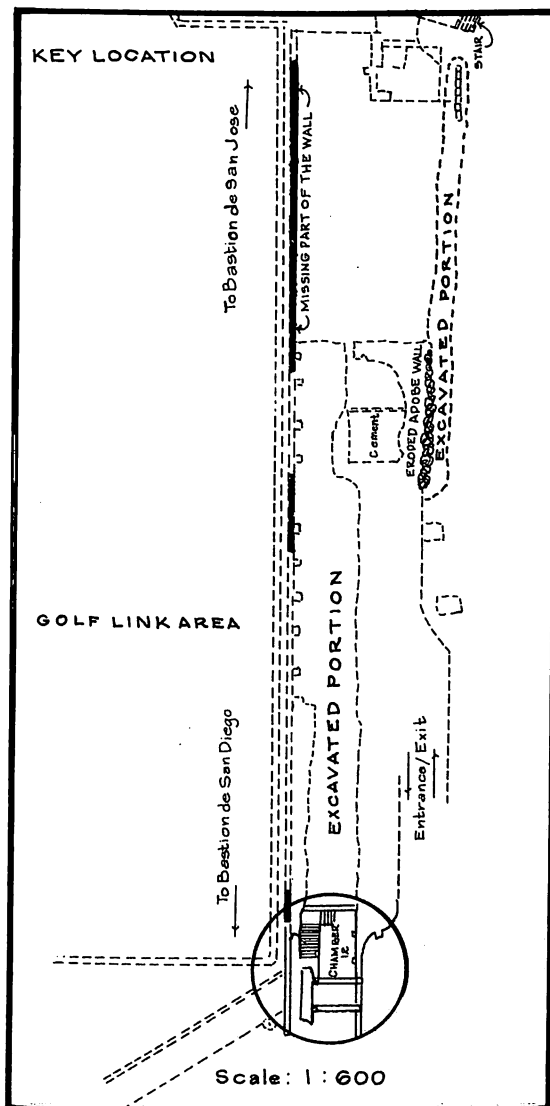


Figure 61. Curtain wall.

derneath was removed during the archaeological excavation in order to check if more architectural features were covered by the soil fill. Each step matches the height of the step on the other side of the wall, which leaves the impression that it used to be one continuous structure until "spoke D" partitioned it.

It is to be noted that the foundation of "spoke D" only consists of well-packed soil fill; only its upper portion is walled by masonry. The steps lead to an opening of the spiral staircase which had been partly covered with adobe (Figure 59). This was a doorway, stepping out to the ground of the third circle, which before the advent of the cistern and other related structures brought one to the patio and the casemates.

"Spoke D," on the other hand, may have been built as a retaining wall to dam the backfill holding the manhole and the stairs. What is not readily discernible is the logic behind the decision to build these structures on a hanging or floating foundation. As to the age of these structures, I am inclined to suppose that the underground vaults, the "manhole" and the cistern are contemporaneous. There is no reason why the structure referred to here as a "manhole" may not have been a free-standing shaft. The three separate stairs may have been hasty attempts at repairs when the original mechanism related to the cistern was destroyed. It is noticeable

that, progressively, work on the bastion had become sloppy. Thus, the steps, the backfill and "spoke D" are, in my personal view, of the same age.

The spiral staircase, which I have freely attributed to Manrique de Lara, may have been roofed in at one time. The top steps of the stair are tiled, while the midsection and lower steps are of adobe. Were they trying to keep the steps free from moss and lichen? This assumption makes sense only if the spiral staircase had been roofed in, which would mean that it was protected only from the occasional spray of rain that a strong gust of wind brings. On top of the structures, there are canal-like grooves that lead water away from the stairwell; although a short stretch of tiled drain actually leads to the structure (Figure 16). But we cannot ascertain the age and the function of this drain. The top of the bulwark had been used as an actual habitation site over the years, so that many of its original features may have been removed. I believe, however, that the staircase was roofed in, probably in the manner of the twin domes of Puerta Real, on a smaller scale, of course, or the *garita*, even. As I have also stated earlier, it is possible that the spiral staircase may have led to the other courtyards behind the wall of the third circle. In casemate No. 10, we note that its arched structure is separated from the outer wall and below its floor level is a deep trough. Immediately above this to the right, recessed behind the pier of the arch, is a low archway that leads somewhere beyond the structure, possibly down the courtyard below the east orillon. Unfortunately, because of the precarious condition of certain sections of the structure, the archaeological team could not excavate further on, much less enter some of the many crevices built into the third circular wall.

THE CISTERN. The National Museum research team had advanced the theory that the inner cylindrical structures of the Bastión de San Diego were used as a water reservoir at the end of the eighteenth century. The team reached this conclusion after observing the nature and behavior of the cylindrical structures during the rainy season within the period of excavation. Toward this end, we worked collectively with Mr. Emilio Morales, consultant engineer formerly with O.A. Kalalo, Inc., the engineering firm which undertook the soil boring tests on the site, to reconstruct from the various elements which emerged during the excavation, the hypothetical roofline of the cistern.

The only texts from history we could draw support from are the 1764 memorandum of Miguel Antonio Gómez and the statement by Manuel Buzeta and Felipe Bravo ascribing the durability and strength of the fortress to certain amenities like "wells, cisterns permanently full of water, the ability to maintain abundant stores at provision . . ." (Buzeta and Bravo 1850:215). Unfortunately, neither historical record locates where these cisterns stood. Thus, we now have a reverse situation where a structure exists but is without a supporting historical account to explain its origin. The problem lies not in believing its existence or its function but in puzzling out when the cistern was introduced into the bulwark of San Diego.

The early centuries of Spanish rule are disregarded for dating the cistern. Had it been constructed in those early years, the cistern would have been given some passing mention in the early accounts of the Spanish settlers and certainly could not have escaped the documentary records supplied by the professional engineers who worked on the walls after the British occupation. In all likelihood Gómez's proposal to build a cistern was deferred until a later period. In the post-British period the immediate concern was the repairs and upgrading of the facilities of the walled fortification. Up to the late eighteenth century, the time of Gregorio Clavero, the last of the Spanish engineers to work on the walls, the main preoccupation was in building its defense and getting it ready for another possible breakout of hostilities among the European maritime powers. Not only the English but the Portuguese and the Dutch had long been interested in Manila. Moats were thus dredged and made fully operational from Bastión de San Gabriel to Fort Santiago. New outworks appeared—the remodeled Revellín del Parián and the Revellín de los Recoletos; all the smaller bulwarks by the seaside were improved and new defenses added along the riverside, which was formerly left virtually unarmed. For until the British came and conquered, the Spaniards may have thought of themselves as invincible and, therefore, never considered the possibility that the enemy could get farther than the seafront.

As the Peace Pact held, the colonial government's thought must have shifted away from the walls circumvallating its capital city to dwell on civic improvements. With the increase of population within the Walled City and the variability of rainfall in that century, concern for water supply may have entered into its priority projects. Without enough

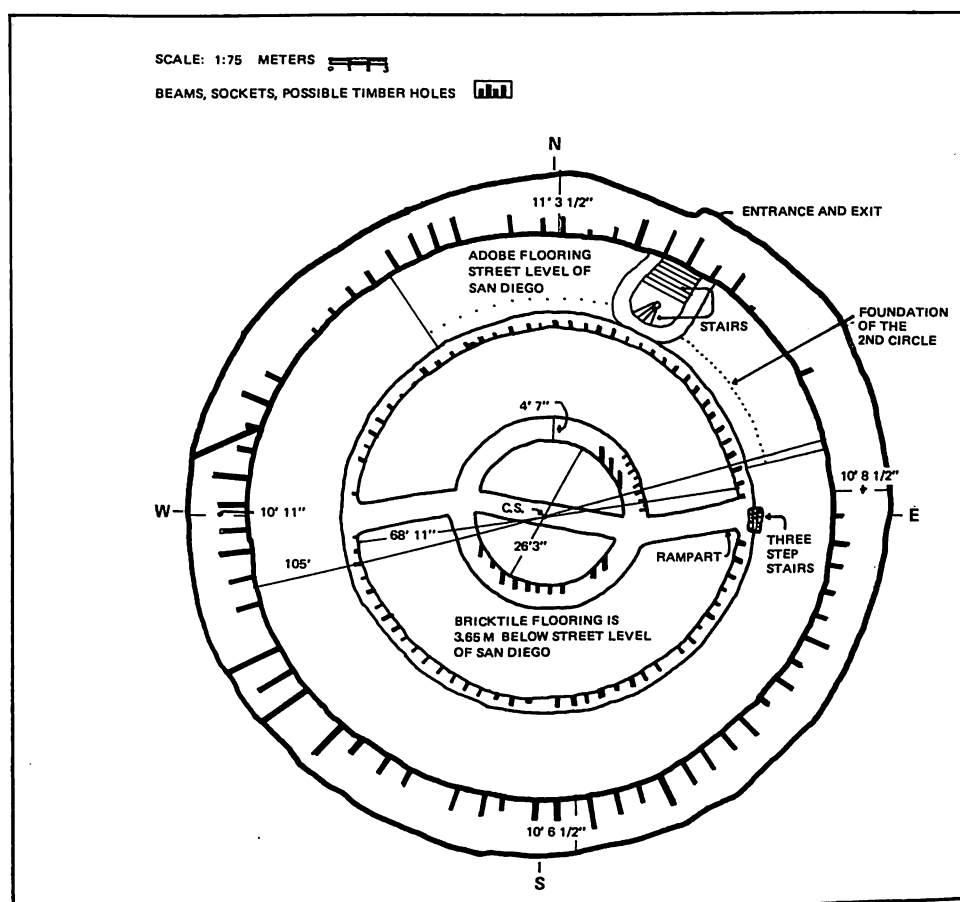


Figure 62. Top view of circular structure.

financial resources for complete replanning of the city, the conversion of any suitable structure for such a purpose must have seemed appealing. Gómez's proposal apparently struck a sound note, for a cistern, or cisterns, were built. In the final years of the eighteenth century or within the first decades of the nineteenth century before the introduction of the Carriedo water system, cylindrical structures were added into the bulwark of San Diego.

In the three years I worked with the Intramuros Administration, I had come across four sites where such deep wells or cisterns could have been built. These are the inner portion of Fort Santiago indicated in the 1714 plan of Ziscarra and the 1771 plan of O'Kelly, as *aljibe arruinado*; that portion of the Maestranza beside the tennis court where the Intramuros Administration workmen, led by Mr. Jaime Reyes of the National Museum, excavated a circular structure which may have served as a cistern, and within the same Navy compound, where an *alcantarilla* still flows with cool and fairly clean water. Then, there is Bastión de San Diego itself, whose big circular structure's estimated capacity is 1,938.636 M³. Bastión de San Diego may have been

the ideal site for locating a cistern, for around its peripheries were lodged the main garrisons of the artillery and the infantry. It was also farthest away from the riverside or source of potable water. The well within its original patio may have dried up by this time; it certainly could not have provided for the need of large contingents of soldiers and citizenry. Though we have no data on the average rainfall of the eighteenth century and early nineteenth centuries, the records of the Manila Observatory give readings of average rainfall from 1865 to 1898. It shows a marked variable pattern within the Manila area. The year 1867 yielded the highest rainfall with a total of 2,978.8 millimeters, with 1885 registering an all-time low in the 34-year span, with a reading of 906.5 millimeters. There were 198 rainy days in 1867 but only 89 rainy days in 1885 (*Algunos Padres de la Misión de la Compañía* 1900:82). Similar droughts in earlier times may have affected the various waterholes of Intramuros and may have led to the construction of a large cistern.

How do the inner cylindrical structures collect and store water? Three underground waterpipes have been built into the wall of the second circular

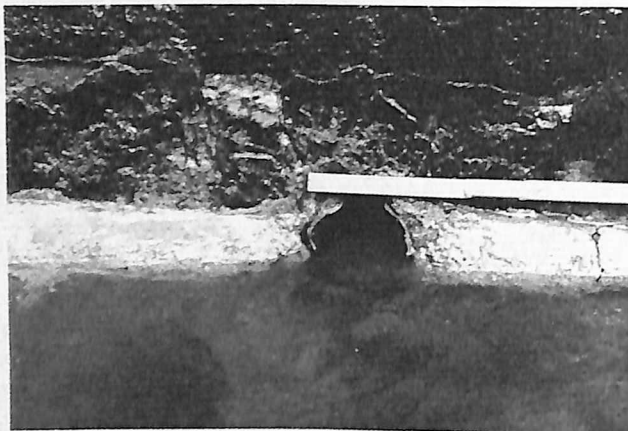


Figure 63. This water pipe with a diameter of seven centimeters is found on the flooring of the second circle on its dividing wall in the west quadrant.

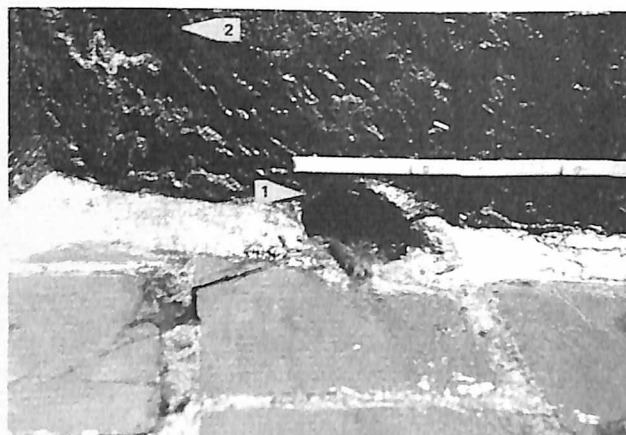
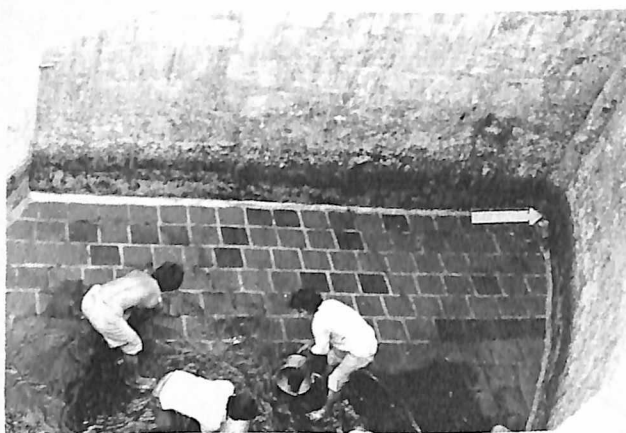


Figure 64. These two tube pipes are located at the bottom of the second circle spaced at a distance of 20 centimeters from the other.

Figure 65. These two holes, also measuring seven centimeters, are located on the eastern corner of the second circular structure. No visible casing can be seen so that the actual purpose of the holes cannot be presumed to be that of water conduits. Perhaps, they were clean-out holes plugged when not used for such a purpose.



structure (Figures 63-64). Two are on the east side, one positioned at 20 centimeters above the other; another is on the ground floor of the west wall. The brick flooring is 25 centimeters below the water table, hence ground water can be expected to fill up to that level, at least. At high tide, sea water also invades the cistern, a factor which actually contributes to its effectivity as a water reservoir. Since saline water is naturally heavier than fresh water, it settles below, while perched fresh water stays atop the salt water, thus rising high. But this clearly was not enough to fill the huge structures. The apparent source was rainfall.

It can be observed that the upper part of each cylindrical structure has uniform holes, which, because of their characteristics, have been interpreted as timber holes. Significantly, one notes that the elevation of each structure varies in height from the third to the first circle: 8.55 meters, 6.25 meters and 5.75 meters. The rather steep inclination that the timber holes project in relation to one another suggests that the holes probably held rafters or trusses to support a roofing structure with a pronounced pitch, then less sloping over the second

structure. In this reconstruction, we visualize two separate roofing structures: one over the third outer structure with partial overhang extending over the second roof covering the middle structure at a lower elevation (Figures 66 and 67).

The clue to this reconstruction comes from the placement of the timberholes of the second structure, which are placed on the inner face, indicating that despite their alignment, the roofing structure was not intended to meet on the same plane. This solution appears tenable, as it gives plausible explanation to the existence of the pillars. We surmise from the remaining bases and four wholly extant pillars distributed around the top of the second structure that there were 22 pillars in all (Figure 69). The four extant ones have holes measuring 30 centimeters wide and 90 centimeters deep (Figures 70, 72-74). Holes are also found on either side of the pillars. Such findings suggest that imposts may have been planted on the pillars, while beams were laid along its side to interconnect one to the other (Figure 70).

The surviving pillars have a uniform height of 1.05 meters. It is safe to assume that the rest of the

OBSERVATION and WORK PLATFORM

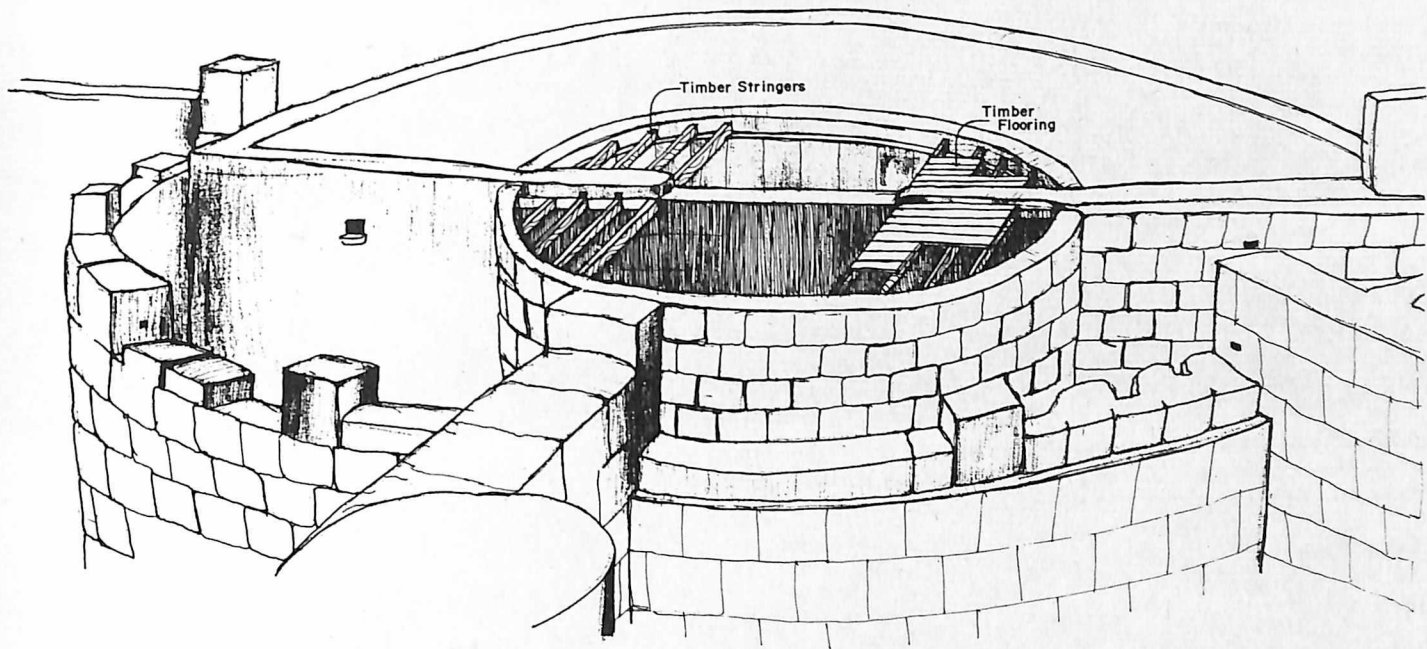


Figure 66. Probable configuration of the observation platform for the inner circle.

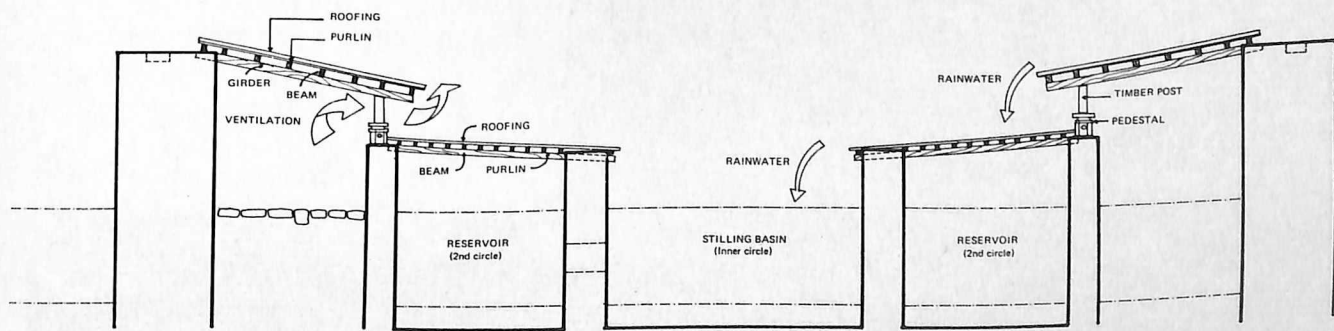


Figure 67. Section drawing.



Figure 68. The top section of the outer bulwark and the cistern showing the timberholes, pillars and dividing wall. Roofing structure of the third circle rests on a post implanted on the pillar or column.

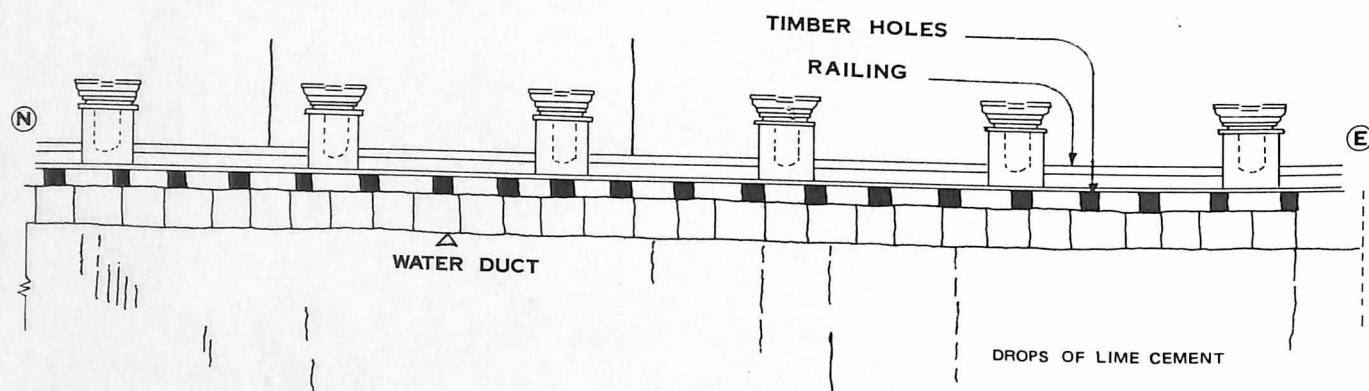


Figure 70. Drawing illustrates how the pillars and connecting beams would look if they were reconstructed. This drawing is based on existing evidences on the structure.

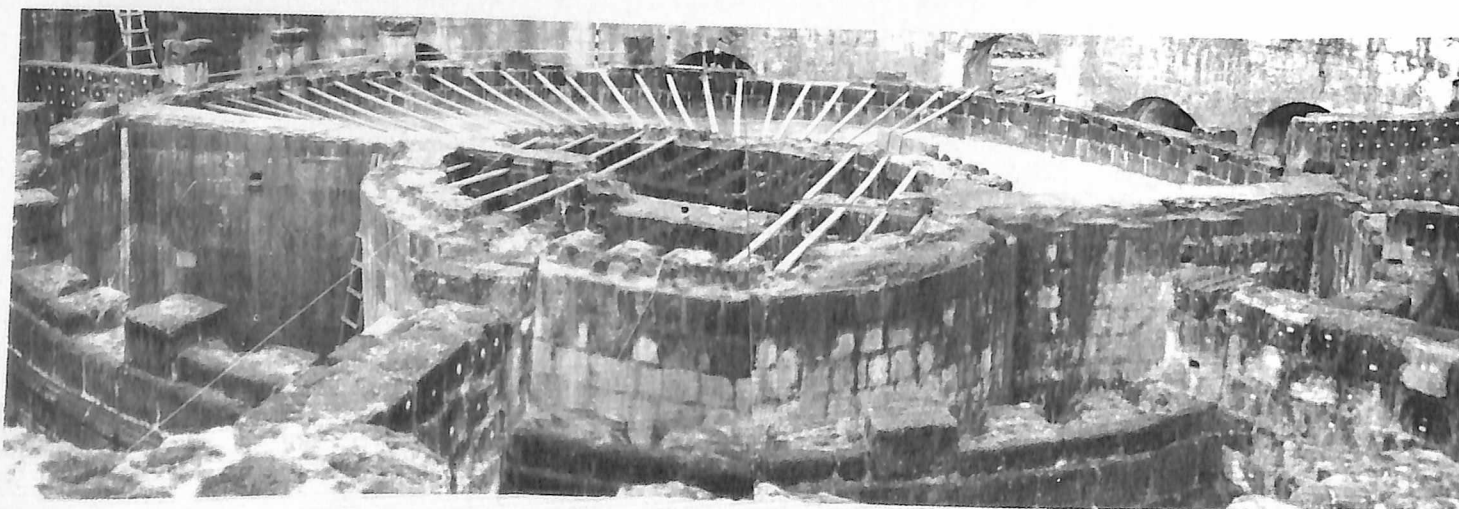


Figure 71. Timber was laid along the timberholes to reconstruct the roofing structure of the second circle. In the first circle, beams were laid out only along the west and east corners of the structure, where an observation platform, consisting of woodboards on top of the beams, was constructed.

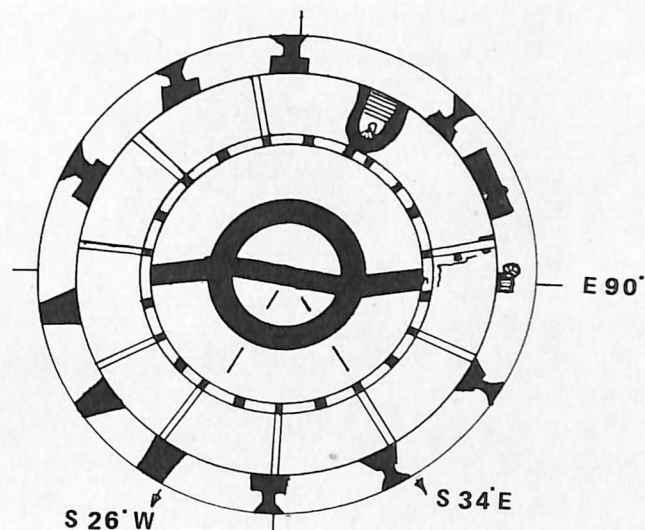
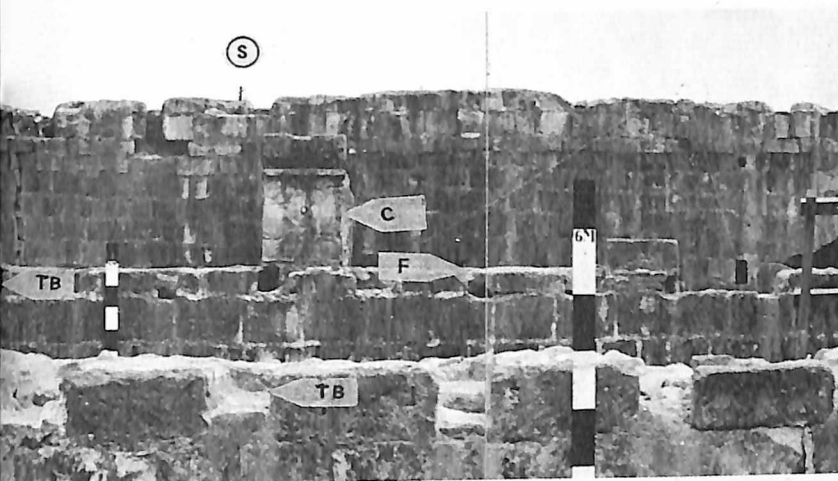


Figure 69. Legend:

TA : Timber holes for roofing structure
C : Columns and spoke
TB : Timber holes
R : Dividing wall

WD : Water duct
E : East
S : South
W : West

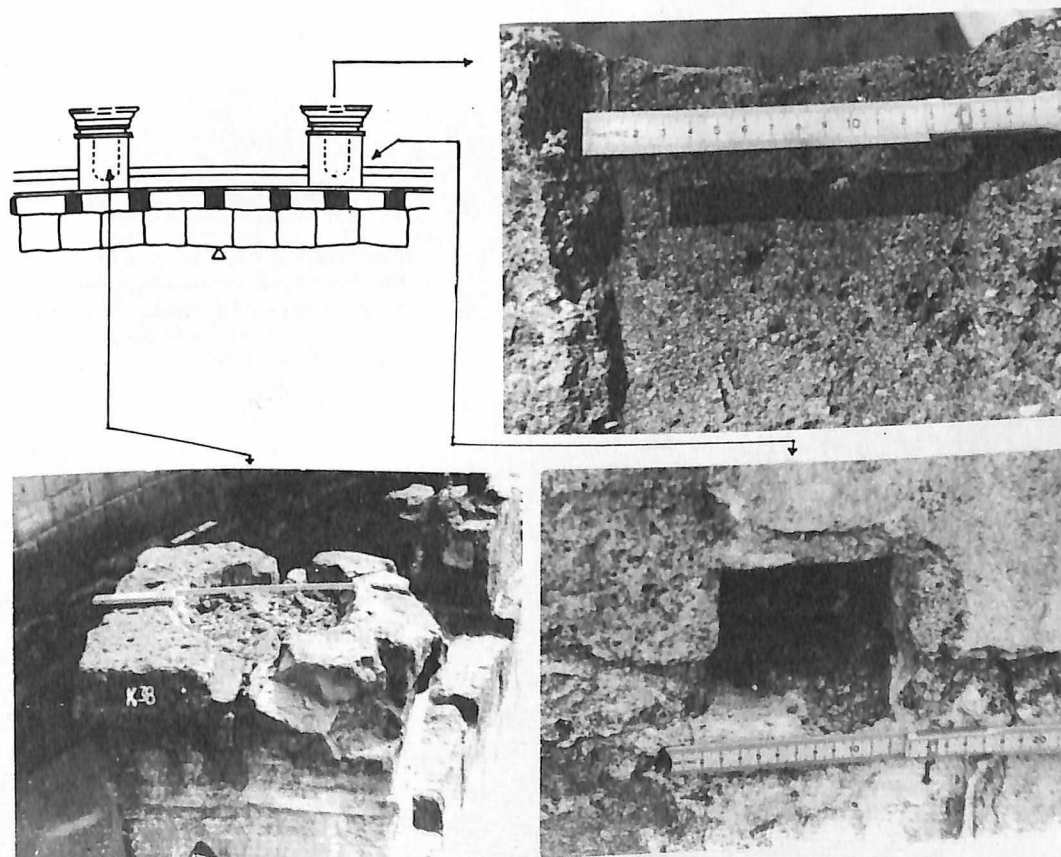


Figure 72. The front side of the top portion of the column slants downward with a depth of 4 centimeters.

Figure 73. The height of this column is 1.08 meters and the entire body measures 60 centimeters. Top of the column has a circular hole measuring 30 centimeters in diameter extending downward for about 90 centimeters (see drawing).

Figure 74. This square hole is one of two located on either side of the column. This feature accompanies all the columns excavated on top of the structure. Each hole measures about 10 centimeters.

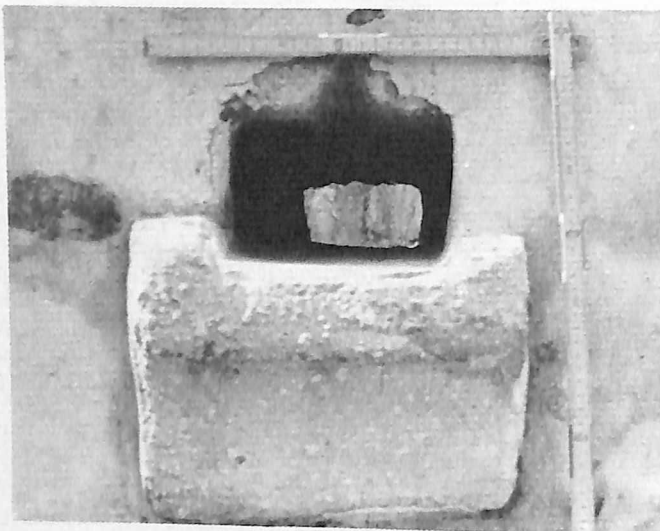


Figure 75. One of the four ducts found on the dividing wall. Only one side of these ducts has spouts; the reason for the omission is not clear, since its obvious function is to keep water at the same level and not necessarily to drain off water to the other side.



Figure 76. A triangular water duct located at N 27°E of the second circle. Water that passes through this duct travels straight on to a drainage.



Figure 78. Waterway found on top of the third circle. The canal may have originally been covered with adobe. It may have been built to prevent build-up of water on the top of the structure.

Figure 77. A system of drainage found within the third circle's top wall. Water drains out to the terreplein. The system may have belonged to the old tower.

broken or missing pillars would have the same height. Thus, if such posts were added to the pillars, there would be a considerable clearance between this roofing structure and that of the next circle, leaving the space from the connecting beams to the base of the pillars open. If so, this was a practical ventilation device, to minimize the build-up of moisture within the third circle by allowing air circulation.

From the second circular structure to the first, the roof slant diminishes, leaving only a clearance of about 0.50 meter from the timber holes of the second structure to the top of the first circle. The gradual reduction of the roof pitch may have served to slacken the cascading water, hence curbing its tendency to create turbulence within the structure. The dividing wall may have helped diffuse such an activity, breaking the splash against its wall.

The roof of the first circle rests on top of the structure or may have extended slightly on its edge. The outer edge of the inner circle, west and east of the dividing wall, has beams running through the structure. It is our collective opinion that these were no longer related to the roofing structure, but were used as observation platforms with floorboards laid on its eastern and western corners running toward the point where the dividing wall declines by 44 centimeters from its height. To each side of the platforms, the supporting beams were left exposed (Figures 66/71) to allow water to fall into the cistern. The wooden beams may have also served as support for pulleys which may have been used for hauling excessive sediments during cleanout.

The cistern complex consists of the first and second circles, with the first serving as its sedimentation chamber. In this respect, the archways may have been fitted with doors that reached up to the ledge of the smaller apertures. Thus, there would be two additional windowlike openings when the water gates were closed, through which water spilled out to the second circle, which mainly stores the ground water conveyed by the underground water-pipes. The spoutlike ducts (Figures 75-76) on the upper part of the dividing wall may have served the purpose of equalizing water distribution. When the amount of collected rain water and underground water was higher in any one section, the excess spilled out to the other side, thus equalizing its load, and undue expansion of the wall on any one particular section was avoided. It is also possible that when excessive sediment collected, the water gates were opened to release the water, allowing the hauling of the sandy deposits by means of pulleys suspended

from the beams overhead.

Surrounding the third circular structure on the terreplein is a canal-like groove. The portion on the northeast section is still fairly complete, and here the stone arrangement on the outer edge is tipped toward the groove. Indications also show that the canal was previously covered with adobe stones (Figure 78). Simple tests were conducted to determine the passage of water into the structure. Large quantities of water were poured into the canal which invariably traveled to the duct on the dividing wall. Gurgling sounds were heard around the "manhole." It was then supposed that water passing through the duct on the dividing wall inevitably ended in the "manhole." But it was not evident how the water reached there. That water was kept clean by a cover of adobe stones seems to represent an intention to conserve this water as well. Of course, one obvious reason for lining the top of the canal was to make it a more convenient walkway.

On the interior wall of the third circle on the west quadrant, there is a series of grooves that leads to a duct, which we assume to be a drainage outlet (Figure 77). We could only listen to the sound of water trickling down the structure. How its system operates is another matter that for now must remain a mystery. For to learn of its function and its value, one has to dismantle it. This would require such careful documentation and study and the supervision of an archaeologist in removing and restoring the stones. Only in this manner could one guarantee its faithful restoration, and unless this was ensured, it would be best to leave it well alone. It had survived several centuries of oblivion and neglect; it would be a pity to see it destroyed now by good intentions.

CONCLUSION AND RECOMMENDATIONS. The archaeological excavation in the Bastión de San Diego formally ended in December 1982. Though many nooks and crannies still needed to be dug up and explored, the Bastión's precarious condition prevented us from further activities. The coordinated excavation and research have been able to define a probable time sequence in the development of the bulwark. The structure has been a veritable time capsule encompassing the years from 1576, when Francisco de Sande, third governor-general, first conceived of building a cavalier on the very same spot, to the present time. As we cleared away debris and sand, we were confronted with the structure and we watched history unfold before us. By

piecing together the historical evidences we encountered, we were able to establish the following data.

1 The lower portion of the third circle holds within its structure features which can be regarded as the oldest within the complex:

a The casemates below may have all been constructed during the Vera-Sedeño period. Further, casemates four, five and six of the southwest quadrant exhibit a different and cruder method of construction thought to be older. The rest of the casemates, including No. 10, which has the same shape as the aforementioned vaults, were remodeled and repaired from time to time. The first facelifting of the casemates may have been done during the administration of Sabiano Manrique de Lara (1653-63).

b The spiral staircase on the east quadrant and the spiral staircase mounted on the landing of the straight stairs in the main entrance exhibit the same mode of construction and may have been built at approximately the same period. Both were renovated; the staircase by the main entrance may have been dismantled, but its upper segment was incorporated into the new staircase when this was built about the end of the eighteenth century.

c The subterranean courtyards documented in the *planos* submitted by Fernando Valdés Tamón in 1731 and 1734 are to be found by the northwest quadrant; the subterranean courtyard on the southeastern quadrant remains to be confirmed.

d The subterranean passage documented by Engineer Dionisio O'Kelly as *bóveda inutil* exists and is located on the west quadrant.

e Another passageway leading to the north curtain wall toward Bastión de San José has been excavated and may have been built at the same time as the *bóveda*.

f The two inner cylindrical structures were built late in the eighteenth century or about the turn of the nineteenth century. Contemporaneous with these structures are the "manhole" or water shaft, the underground chambers below, the horseshoe-shaped stairwell and stairs and the buttresses or spokes.

g The crenellated parapets and the *garita* on its tip were from the period of reconstruction by Thomas Sanz, 1779-84.

h The lone existing *garita* on the north flank may have been constructed either before or after 1779. No plan documents the construction of three watchtowers on Bastión de San Diego. Accord-

ing to the record of 1779 only one *garita* was reconstructed, that on the tip, leading us to presume that the other watchtower left extant is from another period.

i The steps leading down to the reconstructed *garita* appear old. It is difficult, however, to determine its exact age, since they were found on top of the structure where many changes took place.

Now that the difficult period of excavation has ended, the more difficult phase begins—that of restoration. The Intramuros Administration has wisely concentrated on the outer walls to arrest the further erosion of the structure. The top of the bulwark approximates closely the plans of Thomas Sanz; therefore, it was his plan of 1779 which was followed in the restoration of the crenellated parapets and the reconstruction of the watchtower at the tip. The decision to reconstruct this watchtower may be justified in a way, since its existence can be supported by historical documents. When exactly had it disappeared from the bulwark after its 1779 reconstruction, we do not know. Perhaps, it fell during one of the major earthquakes that hit Manila in 1863 and 1880. Buzeta and Bravo bear out its existence in the configuration of their documented map printed in 1850—a protuberance at the tip of the bulwark. We know for certain, however, that it was no longer there when the aerial photograph of prewar Manila (Figure 14) was taken.

The desire to follow various *planos* of the fortification and to reconstruct structures based on mere traces of ruins can trap the unwary restorer into historical fallacies. Such is the case of the newly built *garita* on the junction of the curtain wall and the east flank of the bastion. The decision to build a *garita* here seems to have been motivated solely by the archaeological discovery of a round slab of adobe planted in this section of the wall. No other evidence shows this slab to be the base of a *garita*. There are no *planos* on hand to relate that round base to a watchtower. For one, its location—well within the curtain wall and away from the edge of the wall—seems inconsistent with the function of a watchtower. Neither do available photographs of this part of prewar Manila and after its destruction by bombardment (Figures 14-15) show the structure. To decide on such scanty evidence that the round adobe slab represented the remains of a *garita* seems precipitate. Its reconstruction seems to have little basis in fact or history. For even the details of available plans must be confirmed by

archaeological evidence. Without such evidence, any restoration may be faulted, its authenticity doubted. Such a kind of "restoration" would remain, at best, an intelligent conjecture.

The term *restoration* implies that something is put back into its original state. However, if the original state recorded in historical accounts has no ruins to speak of, then there is nothing to restore. What we have to consider is the structure *qua* structure as it confronts us now. Therefore, one can say that no part of the wall can be absolutely dated to a specific period. Rather, it would be a composite of many features added on, altered, renovated, repaired through the years and centuries. But the life of a structure ends as soon as it is declared a monument. It becomes for all practical purposes "dead," in the sense that it ceases to relate to daily life and activities—therefore no longer subject to further changes, excepting environmental ones. Thus, no other features may be added, unless made necessary by structural defects.

A structure being "rehabilitated" for modern use may admit the minimal addition of modern conveniences, such as lighting fixtures or a ventila-

tion system. In the case of Bastión de San Diego, conservation measures might necessitate the construction of a completely modern roof to protect the inner circular structures and/or a drainage system that would prevent flooding. A few of the spokes impinging on the casemates may even have to go, to show the architectural history of the structure and to allow access to various structures—provided the structural stability of the circular cistern is not affected. But obviously, either the indiscriminate removal of architectural features or the addition of new construction would violate the integrity of the structure.

It is therefore imperative for the Intramuros Administration to formulate definite policies on restoring the walls, to distinguish between "restoration" and "reconstruction" and to give particular thought to assigning new uses to a restored site. The new function would influence to a large extent the rehabilitation measures which will be needed. The role of archaeology in the overall restoration should be defined; its findings pursued with intent and purpose. For in the end, it alone provides the key to the past.

Appendices

APPENDIX 1

Excerpt from "Letter from Santiago de Vera to Felipe II," dated June 26, 1587

This city is located on a narrow piece of land, between the sea on one side and a river of considerable size, which flows through part of the city, on the other; while on another side is a swamp or morass. On the side fronting the sea is a handsome beach, extending two leagues to the port of Cavite, where lie the vessels of the Nueva España line. Where the river enters the sea, the land forms a point, upon which is built a very small and dilapidated wooden fort. Neither on the sea-coast nor in any other part was there any defense. On this account, in view of our danger, I resolved to set about fortifying the city, although the poverty of the city and your royal treasury could not assist me. I have constructed a stone tower on the said beach, near the city; and lower down, where it seemed more necessary, I am constructing a very strong and handsome fort, the plan of which accompanies this letter. In the three months while we have worked on it, I have the first story, where the heaviest artillery is to be placed, ready for flooring. God helping, I shall, I believe, finish it in a little more than one year from now. From this fort and beach near the sea I have dug a deep ditch, thirty-four feet wide, which fills with the incoming tide, and even at low tide has sufficient water to float several vessels, which are used in carrying materials to this ditch to the said work, and for other important things. This ditch extends from the sea to the river, and at that side around the entire city, in such wise that the latter is an island formed by the sea, river, and ditch. In place of the wooden fortress, I am going to build a bulwark to defend the entrance to the river and the beach, which can correspond to the tower already built; and the new fortress will defend both sides, the ditch and the sea. Along the riverbank I have ordered stone breastworks to be built, extending from the old wooden fortress on one side, where the stone bulwark is to be built, to the ditch on the other side. With this, I think that this city will be well fortified; and it would be more so, if your Majesty were pleased to have us provided with a garrison of two hundred soldiers, already paid—as could be done, by the plan about which I have written to your Majesty, without spending anything from your royal estate, and without harm to natives (BR VI:299-300).

APPENDIX 2

Excerpt from "Letter from Santiago de Vera to Felipe II," dated June 26, 1588

As I have advised your Majesty, I have, in anticipation of future contingencies, commenced a good stone fort in this city, which will be entirely completed within a year. I have levied taxes therefor upon the citizens and *encomenderos*; the Indian *tributarios* have each paid one real, while one percent has been collected for two years on the coin brought from Nueva España. I am sending to your Majesty the sketch and model of this fort; it is the strongest which has been built in the Yndias, although it is not of modern style. It was necessary to build according to the condition of the country; it is round in shape, high, and covered over so as to be more capacious. The climate is so hot, the sun so fierce, and the rains so heavy, that if the soldiers who must defend the place were not under cover they would perish from the heat, as would likewise those who should undertake to erect the fort. The stone for the most part of the rampart is so suitable in quality that, wherever a ball strikes, the wall remains unhurt, nor is any other injury inflicted. There is no fear that an attack by a battery can do as much damage as if the stone were hard and resisting. The balls cannot be fired so as to strike, without great difficulty, as the fort is on the shore and the country is perfectly level. Within there is fresh running water in abundance; and in addition to that, wherever one digs, excellent drinking water is found. It is impossible to undermine the fort, because there is water around it, at a distance of one or two *varas*,* or even less in some places. The city is surrounded by water—the sea on one side; on another the moat, which extends to the river; and on still another side, the river itself. Thus the city is on an island; and, with the other bulwarks and the wooden fort, which I have had repaired, this city is well defended, provided we had sufficient troops and ammunition (BR VII:57-58).

APPENDIX 3

Excerpt from "Letter from Santiago de Vera to Felipe II," dated July 13, 1589

The fort which, as I had written to your Majesty was being built, was shaken, when about completed, in three

*A *vara* measures 33 inches.

places by great earthquakes. It opened in one place more than a finger's breadth, although less in the others. To assure its safety and construct it in the modern style, although it was quite sufficiently strong before, I am constructing cavaliers which are to serve as buttresses for it. The principal part, that toward the sea, is finished; the other parts are commenced and, God helping, will soon be completed. These will make it so capacious and strong that it can withstand any attack. I am sending the model, report, and account herewith to your Majesty (BR VII:90-91).

APPENDIX 4

Excerpt from "Two Letters from Gómez Pérez Dasmariñas to Felipe II," June 20, 1593

Your Majesty will have learned from my letters of the satisfactory completion of the enclosure and fortification of this city, since it was already walled from the new fort on the point along the whole stretch of seacoast to the round fort of Nuestra Señora de Guía. This fort having fallen, not having been properly constructed, and so that it was of little or no use, I have reduced it to such shape that it will be of use, by joining to it a defense of cut stone, about as high as the fort and a rampart that commands all the country and part of the sea. On the other side, I have built another rampart, small and low, for the defense of the principal gate of the city, which has been built there under the shelter and defense of the protection of the high fortification; so that fort is now safe and useful. Afterward the work will be completed on the other side. I am sending an account of this. From this gate, the wall is being continued along the land side toward the river as far as its entrance, with the same thickness, height, and shape as the other wall, and each with its traverses.

And now this city is enclosed by sea and land, so that one small portion fronting the river is open between that and the fort of the point. This has not been enclosed, because the open space is so small, and it fronts on the river between the fort of the point and another cavalier named Sanct Gabriel which has been built there. As these two are opposite each other and within easy distance, it is evident that no danger will enter by that place, for it is the best guarded and most secure. And, too, as this wall and fort have been built so little or no cost. . . . (BR IX:61-62).

APPENDIX 5

Excerpt from "Three Letters from Gómez Pérez Dasmariñas to the King," June 20, 1592

I began the fort at the point, where a fort was being built. I have made it with its curtains and traverses, placing the traverses symmetrically as regards one another. It is one and one-half *estados* from the ground and the foundation is of the same depth. It is from sixteen to twelve and eight feet wide on top, according to the plan. The creek of the sea stretched up to the fort, in all about one thousand *brazas* in length; and while it would not do more, it will serve as a very good trench. On account of this fort and wall I have increased the import duty here on all articles from China, such as pep-

per and other things. Likewise, playing-cards were seized in your Majesty's name . . . (BR VIII:271).

APPENDIX 6

Excerpt from "Account of the Fort of Manila and plan that was sent by Doctor Santiago de Vera," undated

"Relación del fuerte [de Manila] y planta del que embia el doctor Santiago de Vera." Sin fecha. (A. G. I., Filipinas, 27).

Hauiendo en esta Ciudad una fortaleza hecha de madera que ultra de ser poco fuerte era menester repararla cada día con mucha costa y trabajo de los ydios *sic* viendo La comodidad que hauia de materiales de piedra y cal y la piedra ser la mejor que ay en el mundo para cosas de fortificación, se trató de hazer una de piedra y juntos todos los capitanes para uer qué forma se la daria uuo pareceres diuersos porque a unos parecia que se hiziese una fortaleza muy capaz y de quatro caualleros y si [se] supiera lo que agora se sabe, o se temiera lo que agora se teme assi se hauia de hazer pe[ro] como no se temia de enemigos de Europa, y que para los que ay aqui alrededor [no] era necessario fuerzas como las de allá, ni era bien obligar a S. M. a tener tanta gente o presidio en partes tan remotas adonde con tanta dificultad se trahe, parecia a los más, y despues todos conuenieron en ello, que se hiziesse un torreón que con treinta o quarenta hombres se pudiesse defender y aunque no se sospechaua que pudiesse hauer bateria se le hiziesse la muralla, para todo lo que se pudiesse offercer de doze pies en ancho y todo terraplenado hasta las primeras troneras que estarán dos brazas y medio de alto y desde alli para arriba subiesse la muralla del mismo grossor y fuesse La viuienda *rotó* la gente y para las municiones, que aunque en el medio del torreón quedaua har[to]/espacio en lo de abaxo por ser la tierra humeda y cálida se conseruan mal las cosas, y con esto quedaua harto espacio para la gente y segura de bateria aunque La uuiesse, por la muralla tan gruessa y de materiales, que dando La bala en ellos es ni mas ni menos [que] como si diesse en un terrapleno que no haze mas que un agujero sin atormentar la muralla y por esta causa y por escusar La mucha gente que una fuerza con gran plaza pedía, no se hizieron traueses; pero como aqui no hauia Arquitectos ni aluañiles que supiesen obrar y assentar La piedra y hazer bien la mezcla, sino indios (que aunque agora son ya más maestros) entonces no lo sabian hazer por no hauerlo visto ni apprendido en su vida, fueron desplomando La muralla de suerte que aunque ella era muy ancha en lo alto vino a serlo más, de lo que hauia de ser al contrario, y ansi hendió por quatro partes como en cruz para remedio desto se le hizieron quatro estribos que siruen de traueses como en la planta que va con esta relacion se verá y con esto y con descargar la muralla hasta el plano de la habitación ha quedado muy fuerte y segura y sube la muralla de doze pies de ancho y de cinco braças o más en alto porque tiene dos suelos uno es donde está la artillería y hasta allá sube el terrapleno el otro es donde ha de ser la viuienda, y aunque es verdad que de cinco braças para arriba

la muralla no es más que de grossor de quatro pies por razon de no cargar mucho supuesto el sentimiento que hauia *roto* y parece que haviendo cerco y plantando artilleria para batir podía ser de mucho daño para los de dentro porque siendo tan flaco con la bateria lo podian arrasar; pero hay algunas razones con las quales se prueua que aunque de nuevo no se haga fuerza puede bastar esta. (Trechuelo 1959:385-386).

APPENDIX 7

Excerpts from a Letter of Governor Sabiano Manrique de Lara to the King, dated August 4, 1663

7 D. Don Diego faxardo mi antecesor por ser la frente de la campaña la parte más peligrossa por donde esta ciudad puede Reciuir bateria fortificó su lienço y baluartes San Diego y San Nicolás de carrança haciendolos mui capaces estendiendolos todo lo posible sacando mas afuera la cortina dejando embeuida en el extremo interior la Vieja que leuantó al peso de la nueva cerrandola con sus contrafortes y terraplen dejando de cortina franca 1,316 pies con macisso en el plano y parapeto de 40 pies que en toda ella se puede jugar artilleria sacando de nuevo el baluarte San Nicolás que la espalda y orejon que mira a la campaña tiene 443 pies, y la espalda con su orejon que mira al Río otros 443; Y el baluarte San Diego le estendió acia la parte de la mar todo lo que pudo que la espalda y orejón que haze frente a la campaña tiene 421 pies y la espalda con su orejon que mira a la mar tiene 399 = Y en solos estos dos baluartes y cortina dejando

el de San Nicolas por terraplenar y acauar y ambos sin alojamientos ni forma para poder jugar la artilleria gasto mas de 300,000 pesos.

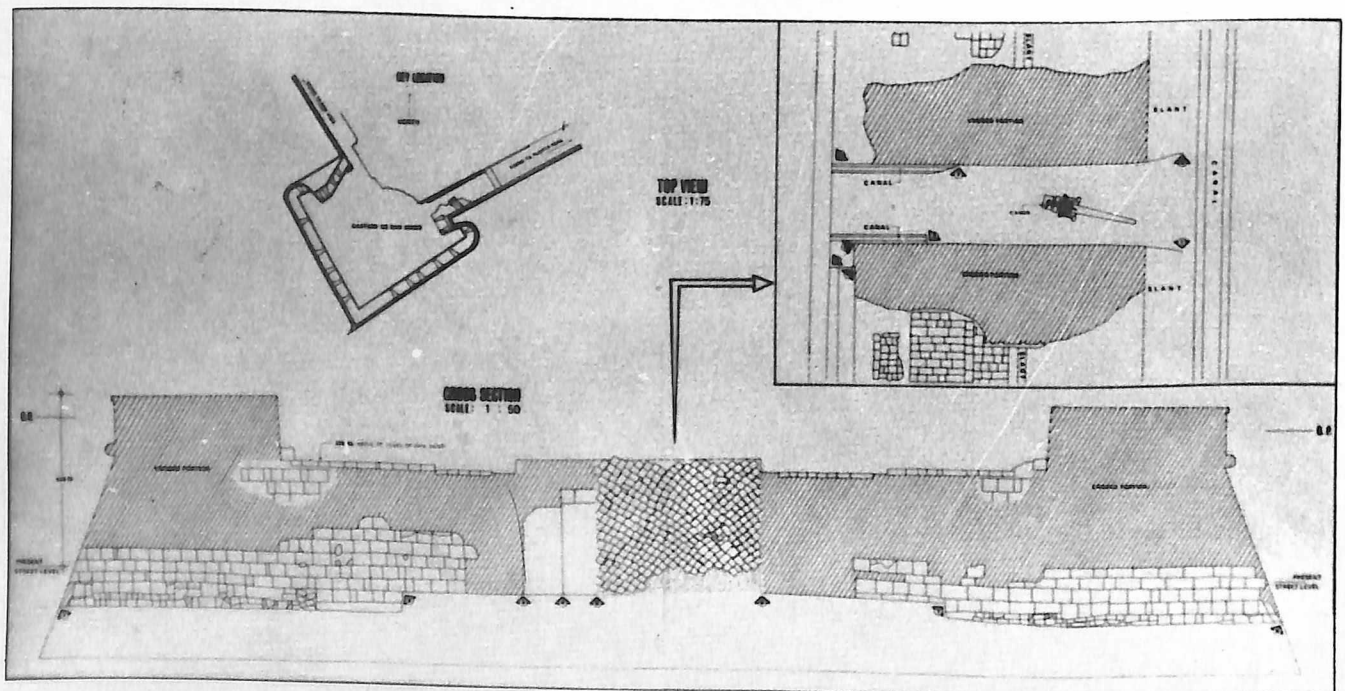
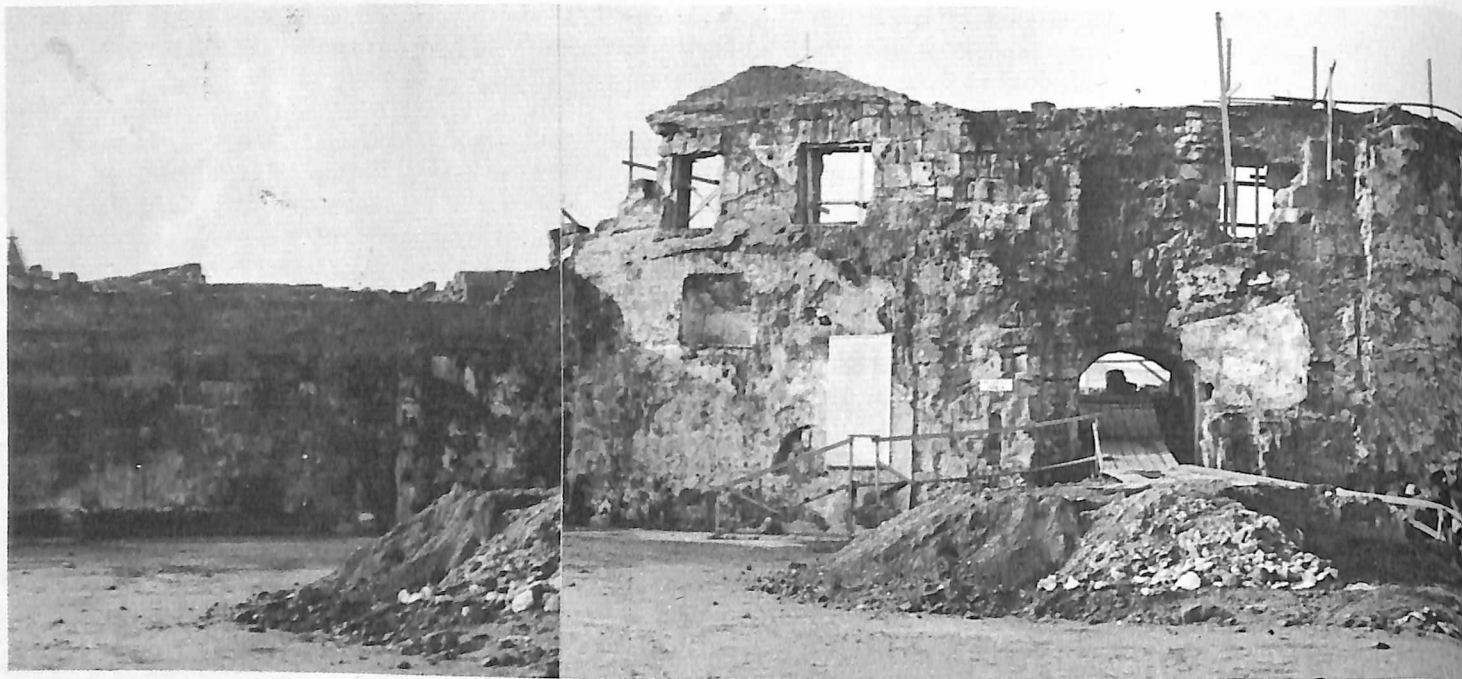
9 Con la obra deste lienzo y baluartes dejo mi antecesor embeuidos en lo ynterno los antiguos y apartada la boca del trauez de la cassa mata que mira a la plaia de la cortina antigua, mas de quarenta pies y comenzada vn pedaço de cortina para correr por la plaia al peso de su planta con que la media naranja que se le seguia y barria el orejon del baluarte antiguo enbeuido San Diego no podía descubrir la espalda nueuamente hecha por cuiu Razon estaua la espalda de la mar deste baluarte sin trauez que le defendiese en conocida flaqueza y para enmendar sus difectos Por ser este traues y el otro su correspondiente y sus casas matas bajas y abiertas a la campaña las subi cubriendolas hasta Ygualar los 25 pies de altura del baluarte sacandole desde sus cimientos al trauez que mira a la playa vn cesgo en proporcion con sus caxones y terraplen vniendole con la cortina que tiene 71 pies y la casa mata en el Rostro 50 y de gueco en el cuerpo del baluarte 49 pies; haciendole en el mismo lugar en la parte interna vna gola espaciosa de 18 pies de ancho y en lo alto della vna garita capaz que la descubre y señorea la casa mata con el maciso de la cortina y en la otra casamatta que mira al baluarte San Nicolás que tiene 46 pies y de gueco 49 con sus parapetos y anditos a su defensa y en la plaça de armas del baluarte vn espacioso alojamiento con camarines para almacenar el tren de la artilleria (Trechuelo 1959:391-392).

APPENDIX 8

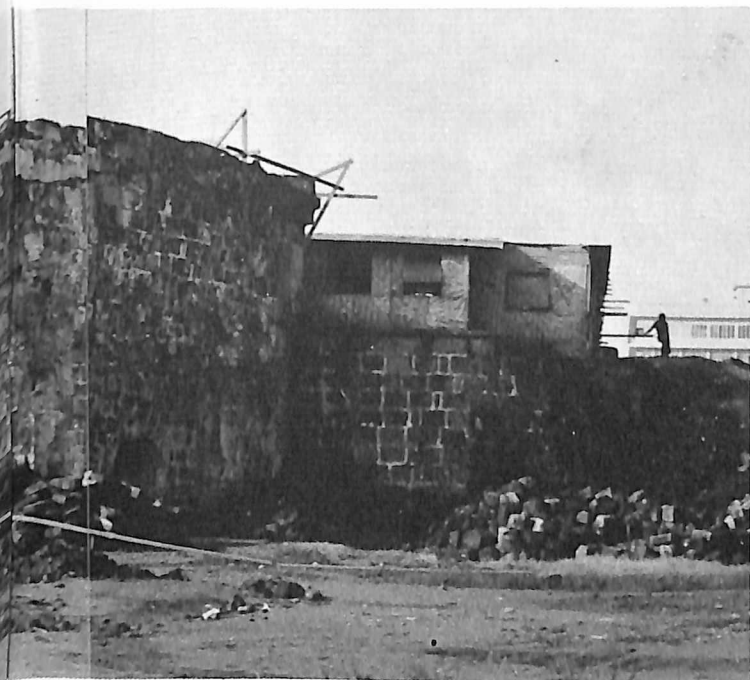
The physical documentation of Bastión de San Diego



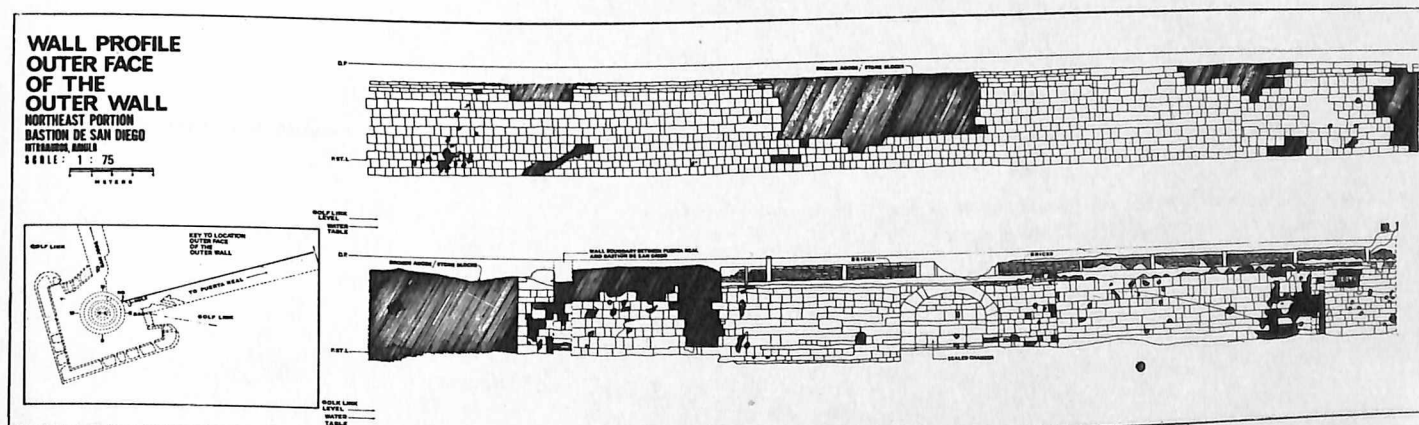
Photograph of the Bastión de San Diego taken from the Manila Hotel in 1979.



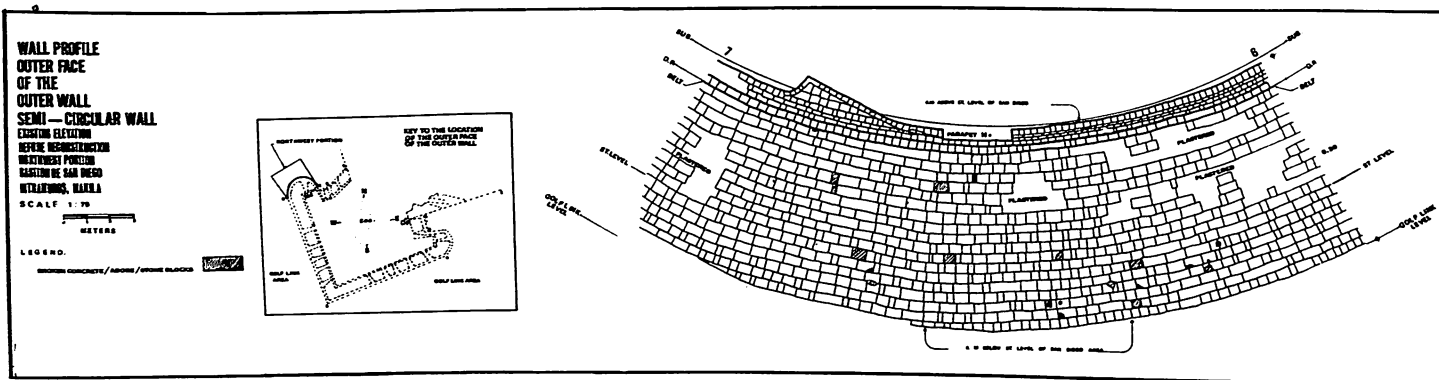
Photograph shows the condition of the west flank. The central portion of the drawing shows how mojonas—landmarks—were used to shore up eroding portion of the wall.



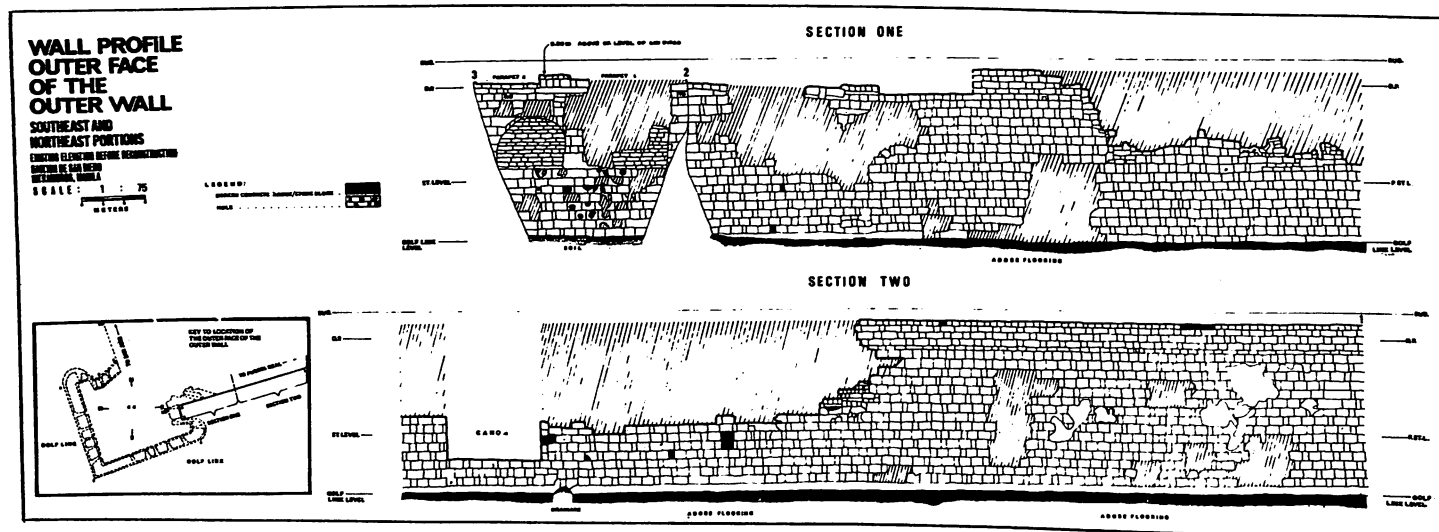
The façade of the Bastión de San Diego facing the Pamantasan ng Lungsod ng Maynila. The two casemates on the right side of the picture probably belong to the period of Vera and Sedeño or to the period of renovation instituted by Manrique de Lara. The eroded portion indicates the location of the ramp documented in the plans of Dionisio O'Kelly and Thomas Sanz, 1770 and 1779. The extreme left marks the location of the ramp, stair and wall documented in Sanz's plan of 1779. Though these projects are classified under obras executadas, there are no archaeological evidences of these structures.



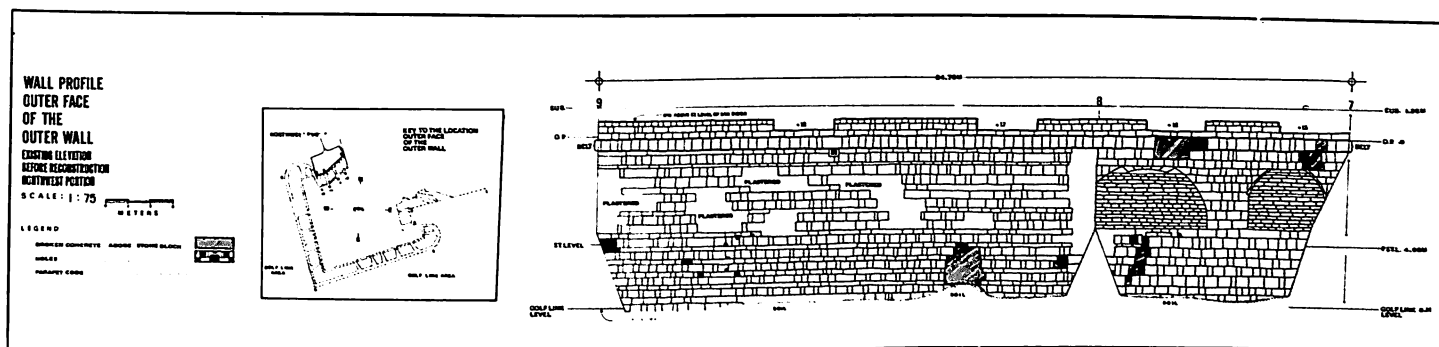
The condition of the wall on the northeast portion of Bastión de San Diego facing Muralla Street.



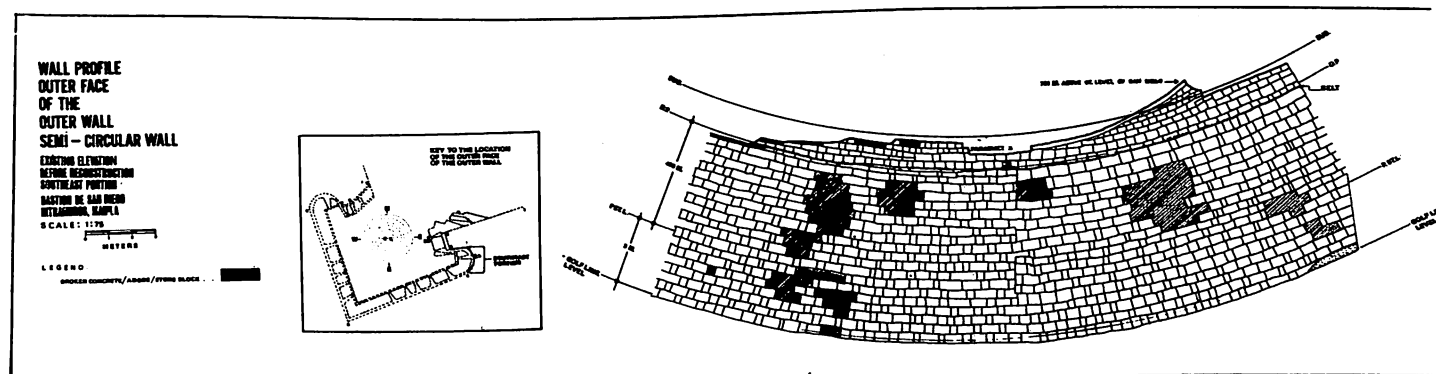
The west orillon.



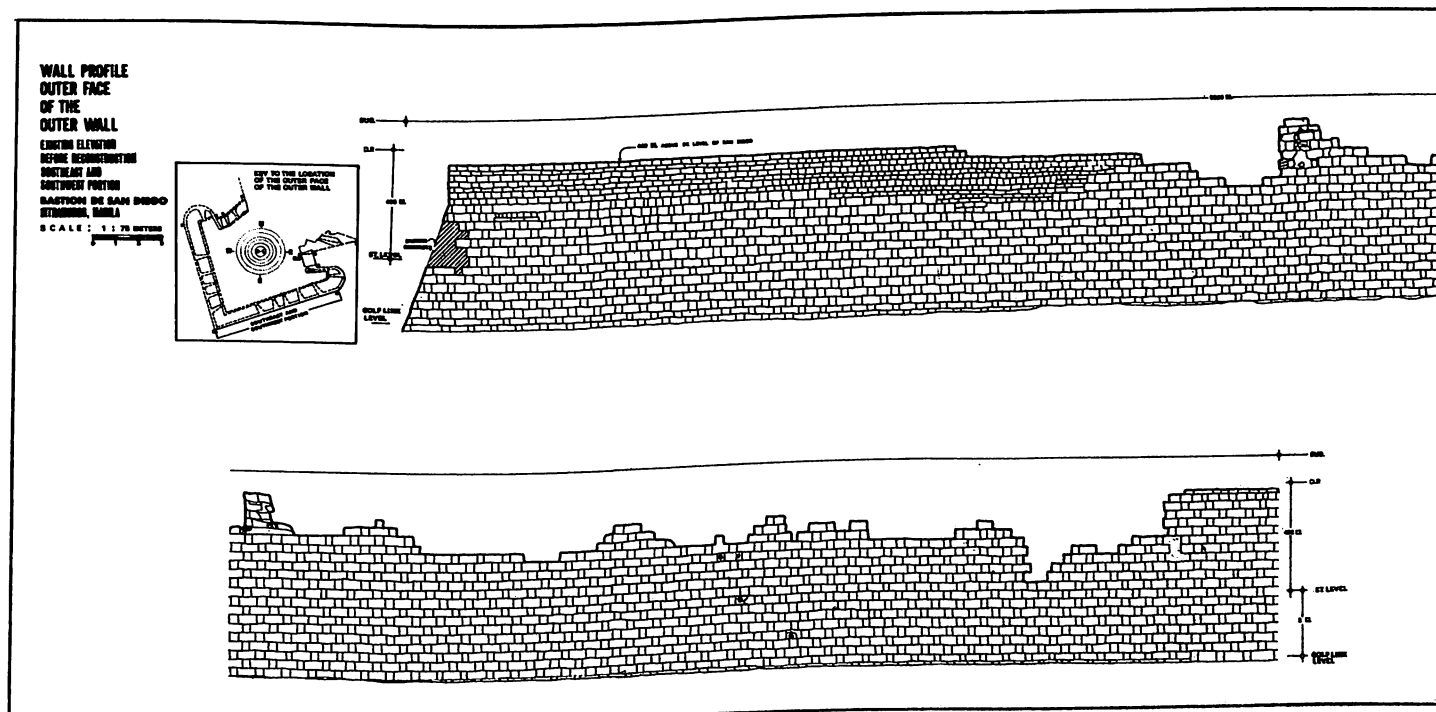
The status of the wall on the northeast portion and, below, the status and elevation of the wall on the southeast curtain wall.



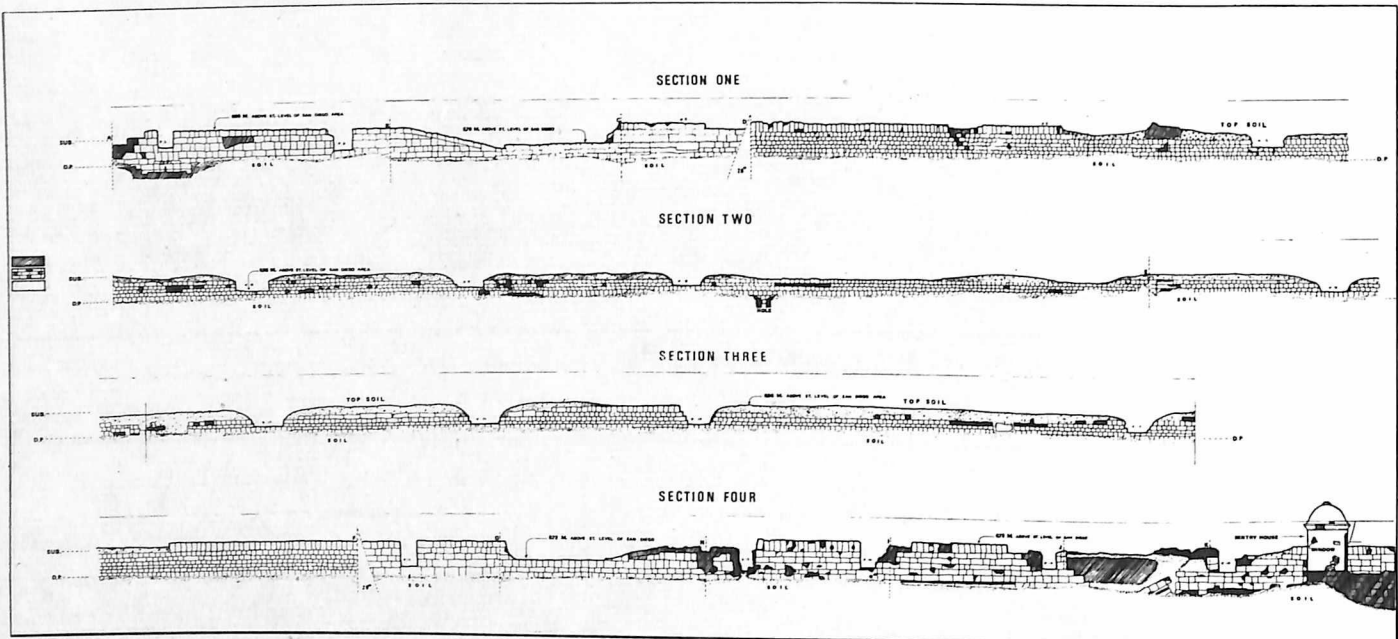
Existing elevation and status of the wall before reconstruction of the northwest portion.



The condition of the eastern orillon and its elevation before reconstruction.



The existing elevation and status of the wall before reconstruction of the southeast and southwest portions.



The existing elevation of the Bastión de San Diego's outer wall.

Bibliography

- Algunos Padres de la Misión de la Compañía de Jesús. El Archipiélago Filipino, Colección de Datos: Geográficos, Estadísticos, Cronológicos, y Científicos, Relativos al Mismo Entresacados de Anteriores Obras ú Obtenidos con la Propia Observación y Estudio.* 2 volumes. Washington: Imprenta del Gobierno, 1900.
- Ateneo de Manila Libraries, Microform Reading Center, Quezon City. *Plan formado en virtud de providencia gubernativa del estado que tenia la Plaza cuando la tomaron los Yngleses acompañando otro plan del nueva fortificaciones.* 1764.
- Baumer, William H. "Fortification." *Encyclopaedia Britannica*. London: William Benton, 1964.
- Blair, Emma Helen, and Robertson, Alexander James, gen. ed. *The Philippine Islands 1493-1898*. 55 volumes. Mandaluyong, Rizal: Cacho Hermanos, Inc., 1973. Vol. 7: "Letter from Gaspar de Ayala to Felipe II."
- . Vol. 8: "Letter from Gómez Pérez Dasmariñas to Felipe II, May 31, 1592."
- . Vol. 8: "Three Letters from Gómez Pérez Dasmariñas to Felipe II, June 20, 1592."
- . Vol. 9: "Two Letters from Gómez Pérez Dasmariñas to Felipe II, June 20, 1593."
- . Vol. 35: "Affairs in the Filipinas, 1644-47" by Joseph Fayol.
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- . Vol. 4: "Relation and Description of the Philipinas Islands, June 8, 1577" by Francisco de Sande.
- . Vol. 6: "Letter from Santiago de Vera to Felipe II, June 26, 1587."
- . Vol. 7: "Letter from Santiago de Vera to Felipe II, June 26, 1588."
- . Vol. 7: "Letter from Santiago de Vera to Felipe II, July 13, 1589."
- Bush, James C. "An Historical Sketch of the Walls of Manila, P.I., and the Siege and Capture of Manila by the English in 1762," in *U.S. Army Philippine Division Report of Major General George W. Davis*. Manila: 1903.
- Buzeta, Manuel and Bravo, Felipe. *Diccionario Geográfico-Estadístico-Histórico de las Islas Filipinas*. 2 vols. Madrid: 1850.
- Camp, L. Sprague de. *The Ancient Engineers*. New York: Ballantine Books, 1980.
- Concepción, Juan de la. *Historia General de Philipinas Conquistas Espirituales y Temporales de Estos Españoles Dominios, Establecimientos Progresos y Decadencias. Tomo II. Manila: Imprenta del Seminar Conciliar y Real de San Carlos por Agustín de la Rosa y Balagtas, Año 1788.*
- Costa, Horacio de la, S. J. *The Jesuits in the Philipines, 1581-1768*. Cambridge, Massachusetts: Harvard University Press, 1967.
- Díaz-Trechuelo Spinola, Ma. Lourdes. *Arquitectura Española en Filipinas (1565-1800)*. Sevilla: Publicaciones de las Escuela de Estudios Hispano Americanos de Sevilla, 1959.
- Gatbonton, Esperanza B. *Intramuros: A Historical Guide*. Manila: The Intramuros Administration, 1980.
- Lyons, Norbert. "Manila, the City of Churches." American Chamber of Commerce (January 1923).
- Morga, Antonio de. *Sucesos de las Islas Filipinas*. Translated and edited by J.S. Cummins. Great Britain: Cambridge University Press, 1971.
- . *Sucesos de las Islas Filipinas. Nueva Edición. Enriquecida con los Escritos Inéditos del Mismo Autor Ilustrada con Numerosas Notas que Amplián el Texto y Prologada Extensamente por W. E. Retaña*. Madrid: Librería General de Victoriano Suárez, editor, 1910.
- Reed, Robert R. *Colonial Manila, The Context of Hispanic Urbanism and Process of Morphogenesis*. Berkeley, Los Angeles, London: The University of California Press, 1978.
- San Agustín, Gaspar, *Conquistas de las Islas Philipi-*

nas: *La Temporal, por las Armas del Señor Don Phelipe Segundo el Prudente, y la Espiritual, por los Religiosos del Orden de Nuestro Padre de San Agustin, Fundación y Progressos*

de Su Provincia del Santissimo Nombre de Jesus, Parte Primera. Madrid: Imprenta de Manuel Ruiz de Murga, 1698.

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PART I

Figure 1: *Arquitectura Española en Filipinas (1565-1800)* by Ma. Lourdes Díaz-Trechuelo Spinola, pp. 40-41. Photograph, George Gascon. 2: *Archivo General de Indias (A.G.I.)*, Filipinas, 10. Intramuros Administration. 3: *A.G.I.*, Filipinas, 19(1). Intramuros Administration. 4: British Museum. Intramuros Administration. 5: *A.G.I.*, Filipinas, 151. Intramuros Administration. 6: *Arquitectura Española en Filipinas* by Ma. Lourdes Díaz-Trechuelo Spinola, pp. 104-105. Photograph, George Gascon. 7: *A.G.I.*, Filipinas, 51. Intramuros Administration. 8: *Arquitectura Española en Filipinas* by Ma. Lourdes Díaz-Trechuelo Spinola, pp. 128-129. Photograph, George Gascon. 9-10: Photographs and illustration, The National Museum. 11: *A.G.I.*, Filipinas, 95. Intramuros Administration. 12: *A.G.I.*, Filipinas, 172. Intramuros Administration. 13: *Diccionario Geográfico-Estadístico-Histórico de las Islas Filipinas*, Vol. 2 by Manuel Buzeta and Felipe Bravo, pp. 296-297. Intramuros Administration. 14: National Archives 18-AA-185-33. Intramuros Administration. 15: West Design Studio, Inc. 16-32: Photographs and illustrations, The National Museum. 33: Archaeological documentation, The National Museum. 34: Drawing after Thomas Sanz, 1778. Illustration, Armando Buenaventura. 35: Drawing after Dionisio O'Kelly,

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PART II

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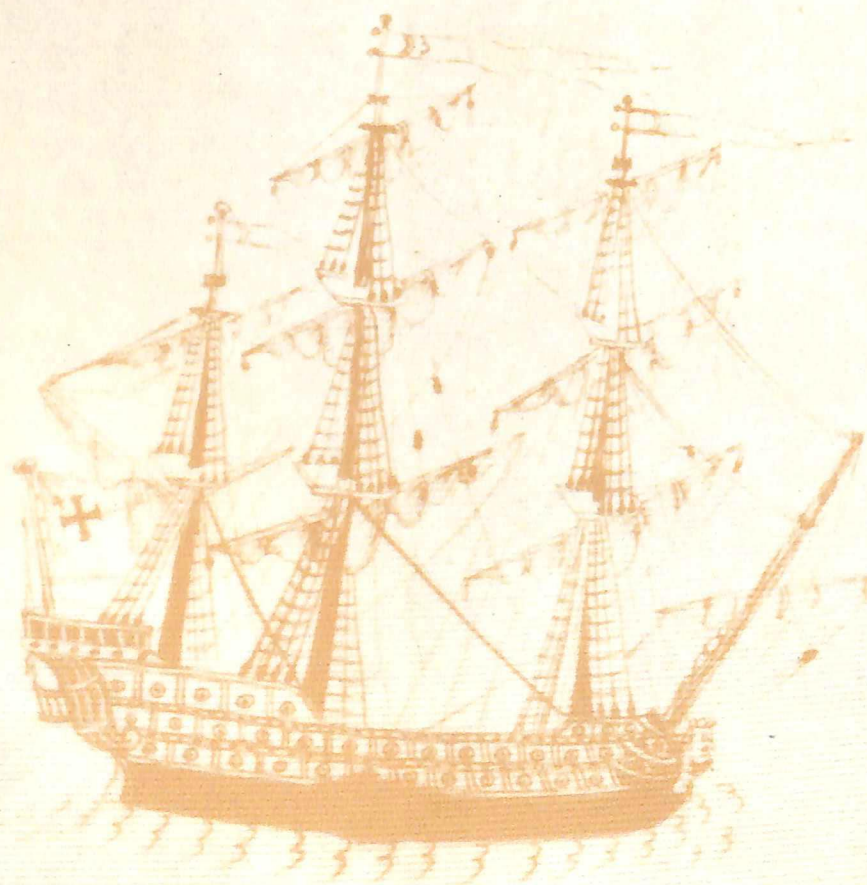
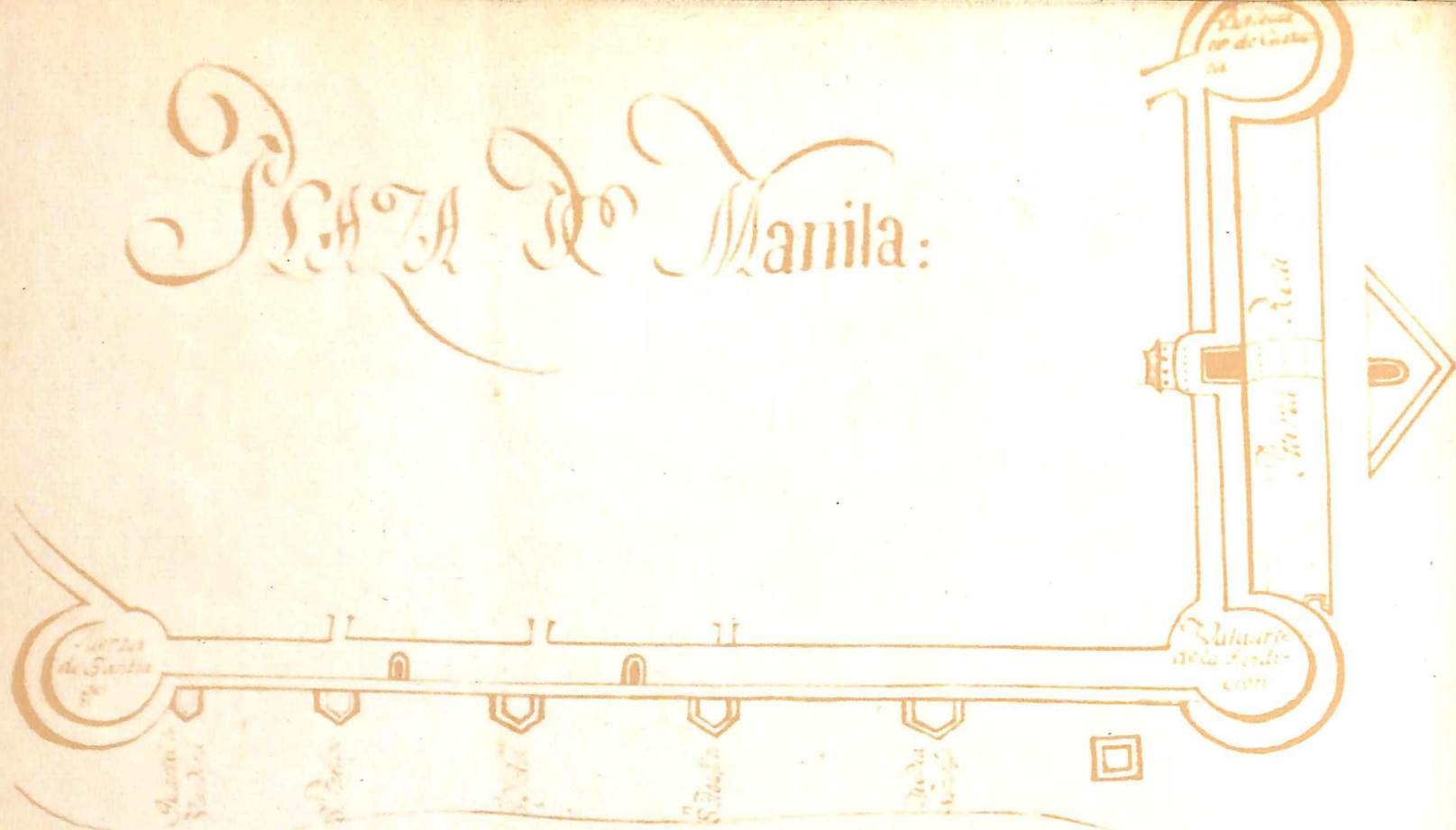
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Figures 42-43: Photographs, George Gascon. 44-45: Documentation, The National Museum. 46: Photograph, George Gascon. 47: Photograph, The National Museum. 48-49: Photographs, George Gascon. 50-51: Photographs, The National Museum. 52: Photograph, George Gascon. 53-65: Photographs and illustrations, The National Museum. 66-67: Illustrations, Emilio Morales. 68-78: Photographs and illustrations, The National Museum.

APPENDICES

Appendix 8: Photographs and documentation, The National Museum.

Plaza de Manila:





of gold treasures persisted. To those who labored in San Diego, however, reality was the dust and grit from the excavation that hurt the eyes and the lungs. In the summer glare, the heat and dust became so nearly unbearable that San Diego became reputed as a hardship post among the Intramuros Administration workers.

Though difficult, work in San Diego was professionally fulfilling. It yielded data sufficient to debunk certain long-standing claims as myths, and to clear up other issues. This monograph is meant to help document this archaeological excavation. It aims to trace and analyze the various elements which came to light and to offer physical and historical data for the conclusions expressed in the text.

Cover: Map of Intramuros by Antonio Fernández de Rojas dated 1729. British Museum.

Endpaper: Plaza de Manila during the British invasion of 1762; a fleet of ships ready to attack the fortified city of Intramuros. *A.G.I., Filipinas, 153.* Intramuros Administration.

Other Intramuros Administration titles:

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